GENERAL ZOOLOGY

— or —

SYSTEMATIC NATURAL HISTORY

— by —

GEORGE SHAW, M.D. F.R.S. &c.

WITH PLATES

from the first Authorities and most select specimens

Engraved principally by

MR HEATH.

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154.D.5.

VOLUME II.——PART I.

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1801.

GENERAL ZOOLOGY.

VOL. III, or the next Volume, which will be published with all convenient expedition, will contain the WHOLE OF THE AMPHIBIA; *and will, of course, comprise the Tortoise, Frog, Lizard, and Serpent Tribes.*

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P. 28. l. 4. for *seven in circumference* read *seven inches* in circumference.
P. 11. l. 2. for *petadactylis* read *pentadactylis*.

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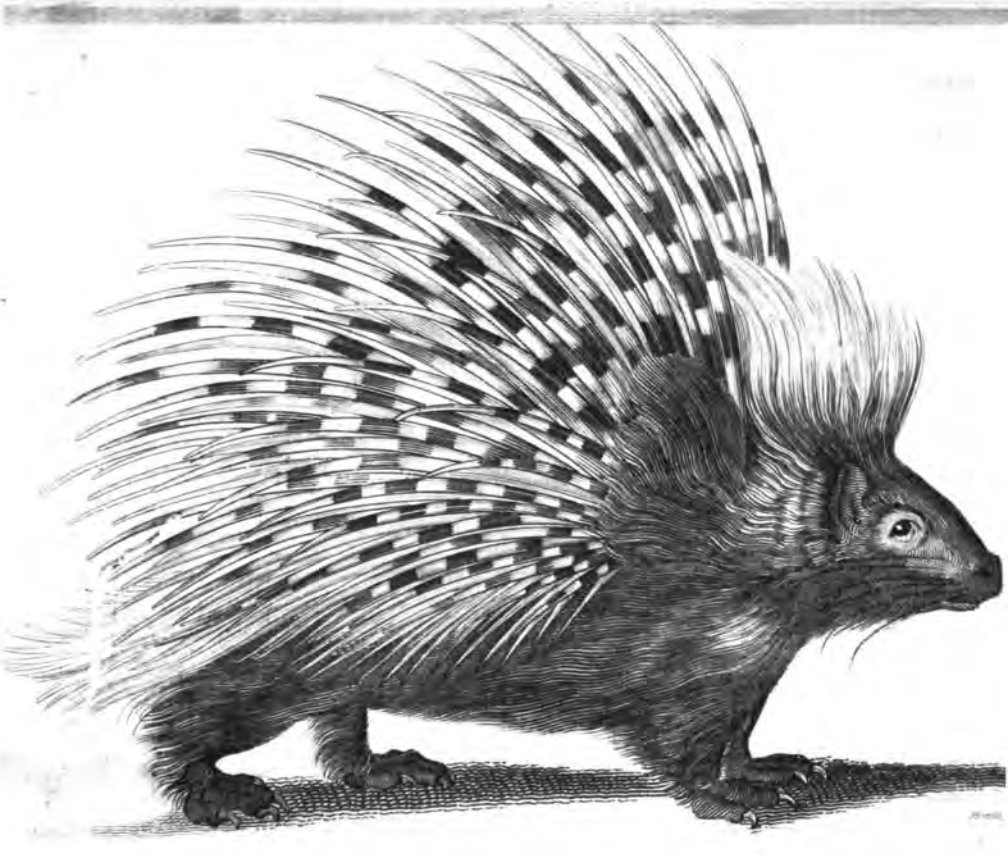


Wm. Lens fc. Lond. Published by G. Kearsley Fleet Street

QUADRUPEDS.

ORDER

GLIRES.

HYSTRIX. PORCUPINE.

Generic Character.

Dentes Primores duo, oblique scissi.	*Front-teeth* two, both in the upper and under jaw, obliquely cut.
Molares octo.	*Grinders* eight.
Digiti pedum 4—5.	
Corpus spinis pilisque tectum.	*Body* covered with spines intermixed with hairs.
	Four toes on the fore-feet; five on the hind.

COMMON PORCUPINE.

Hystrix Cristata. *H. palmis tetradactylis, plantis pentadactylis, capite cristato, caudæ abbreviata. Lin. Syst. Nat. p. 76.*

Long-spined Porcupine, with tetradactylous fore-feet, pentadactylous hind-feet, crested head, and short tail.

Hystrix. *Gesn. Quadr. p. 563. Aldr. dig. p. 471. fig. p. 474. Jonst. Quadr. p. 163. t. 68. Raj. Quadr. 206.*

Le Porc-Epic. *Buff. 12. p. 402. pl. 51, 52.*

Crested Porcupine. *Pennant Quadr. 2. p. 122.*

WE have before observed, that in an arrangement of quadrupeds, from their obvious external characters alone, without reference to the form

and disposition of the teeth, the Porcupine and the Hedgehog might be placed together; but such is the dissimilarity of these organs, that the one must of necessity belong to the Linnæan order Feræ, and the other to that of Glires.

The singular appearance of the Porcupine, so different from that of the generality of quadrupeds, must in the earliest ages have attracted the attention even of the most incurious; the variegated spines or quills with which it is covered naturally suggesting the idea of a fierce and formidable animal: it is, however, of a harmless nature, and the quills are merely defensive weapons, which, when disturbed or attacked, the animal erects, and thus endeavours to repel his adversary.

The general length of the Porcupine is about two feet from head to tail, and that of the tail about four inches. The upper parts of the animal are covered with long, hard, and sharp quills; those towards the middle and hind part of the body being longer than the rest, and measuring from nine or ten to twelve or fifteen inches in length: they are very sharp-pointed, and are variegated with several alternate black and white rings: the root, or point of attachment, is small: the head, belly, and legs, are covered with strong dusky bristles, intermixed with softer hairs: on the top of the head the hairs are very long, and curved backwards in the manner of a ruff or crest: the ears are short and rounded: the nose blunt; the upper lip divided by a strongly-marked furrow; the two fore teeth, both above and below,

extremely large and strong: the fore feet have four toes; the hind feet five; all armed with strong crooked claws: the tail is covered with short and rather flattish quills, which are often abrupt or truncated, rather than pointed at the extremities. This animal is a native of Africa, India, and the Indian islands: it is also found in some of the warmer parts of Europe, and is said to be not very uncommon in Italy and Sicily; but is supposed to have been originally imported into those parts of Europe from other regions. Mr. Brydone, in his tour through Sicily, informs us, that in the district about Baiæ the Porcupine is frequently seen; and that in a shooting party on the Monte Barbaro he and his companions killed several, but that the novelty of the amusement was its chief merit, and that he would not at any time give "a day's partridge for a month porcupine-shooting." He adds, that the party dined on porcupine that day, but that it is "extremely luscious, and soon palls upon the appetite."

The power of darting its quills with great violence, and to a considerable distance, so confidently ascribed to the Porcupine by the writers of antiquity, as well as by some of the moderns, seems now pretty generally exploded: it perhaps originated from an accidental circumstance; and it is surely not improbable that the Porcupine possessing, like other quadrupeds, the power of corrugating or shaking the general skin of its body, may sometimes by this motion cast off a

few of its loose quills to some distance, and thus slightly wound any animal that may happen to stand in its way; and this may have given rise to the popular idea of its darting them at pleasure against its enemies. That it really does cast them off occasionally with some degree of violence there is no reason to doubt *. "The strongest and shortest of the quills (say the anatomists of the French Academy) are most easily detached, and are those which the animals dart against the hunters, by shaking their skin as dogs do when they come out of the water. Claudian accordingly remarks, that the Porcupine is himself the bow, the quiver, and the arrow, which he employs against the hunters." The Count de Buffon reproaches the gentlemen of the academy with their credulity on this subject, and observes, that they seem to have adopted the fable for no other purpose than that of quoting Claudian; since, by their own account, it appears that the Porcupine does not dart his quills to a distance,

* "Upon the smallest irritation it raises its quills, and shakes them with great violence, directing them to that quarter from whence it is in danger of being attacked, and striking at the object of its resentment with its quills at the same time. We have observed, on an occasion of this sort, at a time when the animal was moulting or casting its quills, that they would fly out to the distance of a few yards, with such force as to bend the points of them against the board where they struck; and it is not improbable that a circumstance of this kind may have given rise to an opinion of its power to use them in a more effectual manner."

Bewick's Quadrupeds, ed. 2. p. 444.

but that they only fall off when he shakes himself. The lines of Claudian are these:

Ecce, brevis propriis munitur bestia telis,
Externam nec quærit opem, fert omnia secum,
Se pharetra, sese jaculo, sese utitur arcu!

Arm'd at all points in Nature's guardian mail,
See the stout porcupine his foes assail;
And, urg'd to fight, the ready weapons throw,
Himself at once the quiver, dart, and bow!

Some authors have gone so far as to assert that the Porcupine can dart his quills with such force as to penetrate a plank of considerable thickness. It is agreed on all hands, however, that the animal, conscious of the power of his armour, generally pushes against his adversary when assaulted, and can thus sometimes wound pretty smartly with his spines, and this is said to be particularly the case with a small species found in North America, and known by the name of the Urson, or Canada Porcupine.

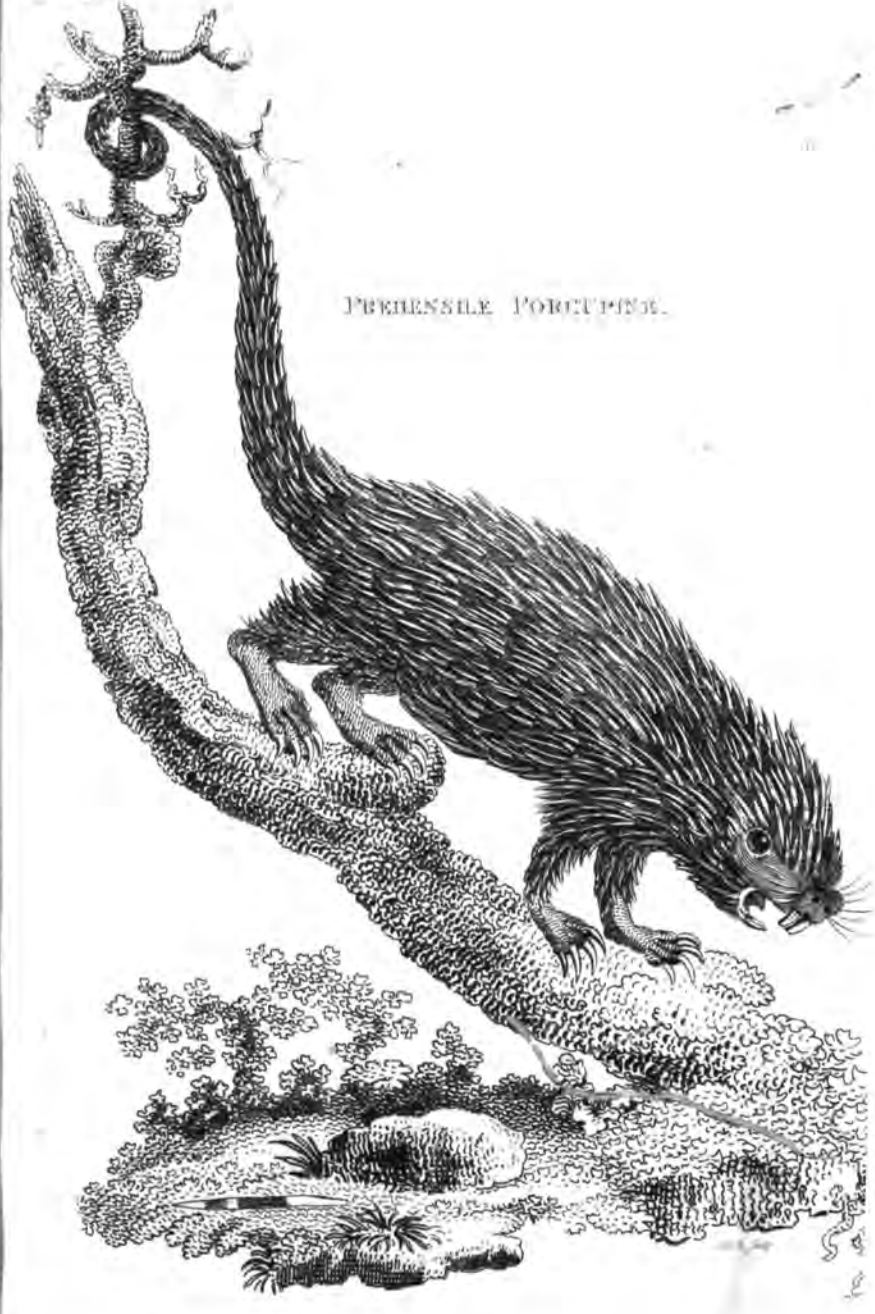
Dr. Patrick Brown, in his Natural History of Jamaica, speaking of the common Porcupine, which, he says, is sometimes brought into that island from the coast of Guinea in the African ships, observes, that "the force and mechanism with which this animal darts its long thorns at its enemy, when it is enraged, is really admirable: nor are the infinitely small setæ these are beset with less remarkable, by which they stick in the flesh with more obstinacy than a simple body of the same form would do. These little setæ are

are very observable to the touch; for, on holding a thorn in your hands, and endeavouring to pull equally with both, you will find the thickest end to glide with much more ease through your fingers than the other."

The Porcupine feeds principally on roots, fruits, barks, and other vegetable substances: it inhabits holes or subterraneous retreats, which it is said to form into several compartments or divisions, leaving only a single hole or entrance. It sleeps much by day, and makes its excursions for food during the night. The female produces two young at a birth, and these, if taken early, are said to be easily tamed.

The Porcupine admits of considerable variety as to the length and proportion of the quills in different specimens and from different countries: the long crested bristles on the back of the head, in particular, are much more conspicuous in some than in others.

PREHENSILE PORCUPINE.



Hart. Soc.ty London. Published by G. Kearsley, Fleet Street.

PREHENSILE PORCUPINE.

Hystrix Prehensilis. *H. pedibus tetradactylis, cauda elongata prehensili seminuda. Lin. Syst. Nat. p. 76.*

Short-spined Porcupine, with tetradactylous feet, and long half-naked prehensile tail.

Hystrix cauda longissima tenui, medietate extrema aculeorum experte. *Briss. Quadr. p. 129.*

Le Coendou à longue queue. *Buff. suppl. 7. p. 305. pl. 78.*

Brasilian porcupine. *Pennant Quadr. 2. p. 124.*

THIS is an American species, and is found in many of the hotter parts of that continent; particularly in Brasil, where it inhabits woods, and climbs trees; clinging occasionally to the branches by its tail, in the manner of some of the Opossums and Monkies. It is said to feed not only on fruits of various kinds, but also on birds. It sleeps during the greater part of the day, concealing itself in the hollows of trees, or beneath their roots. Its voice, according to Marcgrave, resembles the grunting of a pig. Its general length is about a foot, and the tail about eighteen inches. The whole animal, except on the belly and insides of the limbs, is covered with short, strong, and very sharp spines, of which the longest measure three inches, and are white, barred towards the points with black. The colour of the hair with which the under parts are covered is a dusky brown. The head is small; the nose extremely blunt; and the teeth very large and strong: the ears short, moderately large, and rounded: the feet have four toes each, with strong claws,

and a tubercle in place of a fifth toe: the tail is covered with spines for about a third part of its length; the remainder being nearly naked, and strongly prehensile. In the Leverian Museum is a very fine specimen of this animal.

MEXICAN PORCUPINE.

Hystrix Mexicana. *H. pedibus tetradactylis, cauda mediocri.* Short-spined Porcupine, with tetradactylous feet, and tail of moderate length.

Hystrix Novæ Hispaniæ. *H. aculeis apparentibus, cauda brevi, et crassa. Briss. Quadr.* 127.

Le Coendou. *Buff.* 12 *p.* 418. *pl.* 54.

Mexican Porcupine. *Pennant Quadr.* 2. *p.* 125.

The Mexican Porcupine, which is placed as a variety of the Hystrix prehensilis in the Gmelinian edition of the Systema Naturæ, seems to be justly considered by Mr. Pennant as a distinct species. It is as large, according to Hernandes, as a middle-sized dog, and is of a dusky brown colour, with very long bristles intermixed with the fur: the spines, with which the upper parts are covered, are about three inches long, slender, and varied with white and yellow, and are not very apparent through the hairs, except on the tail, which is much thicker and shorter in proportion than in the Brasilian Porcupine, and, like that, is naked, or without spines from the middle to the end. This animal inhabits the hilly parts of Mexico, residing in woods, and feeding,

IRIDESCENT PORCUPINE.

BRUSH-TAILED PORCUPINE.

Jan. 1st 1824 London Published by J. Kearsley Fleet Street.

like the former, on fruits, &c. It is said to be easily tamed. The Indians apply the quills to the forehead in cases of headach: they are said to adhere till they are filled with blood, and then to fall off; thus relieving the complaint in a most efficacious manner. Buffon seems to have considered this species as the same with the Hystrix prehensilis. It is said to have a strong and disagreeable odour. The female produces two young at a birth, in the hollows of trees.

IRIDESCENT PORCUPINE.

Hystrix Macroura. *H. pedibus pentadactylis, cauda longissima, aculeis clavatis. Lin. Syst. Nat. p. 77.*

Short-spined Porcupine, with pentadactylous feet, and very long tail, tufted at the extremity with clavated bristles.

Hystrix Orientalis. *H. cauda longissima, aculeis undique obsita, in extremo paniculata. Briss. Quadr. 131.*

Porcus aculeatus sylvestris, &c. *Seb. 1. p. 84. pl. 52.*

The rice-tailed Porcupine.

Long-tailed Porcupine. *Pennant Quadr. 2. p. 123.*

The iridescent Porcupine is an animal of a very extraordinary appearance. It is of a very thick form, and is coated with short, stiff, needle-like bristles, or small spines, which, according to the different directions of the light, exhibit changeable colours, appearing either of a gilded green, or of a reddish tinge. The head is thick and short; the snout blunt; the eyes large; the ears rather small, rounded, and smooth within; the whiskers long, and the upper lip divided like

that of a hare: the feet, according to Seba, are all furnished with five toes, of which the exterior is shortest: the claws are thick and strong; the tail is very long, and covered with short spiny hair, like that on the body, except at the extremity, which is tufted with a thick brush of quills of an extraordinary form, consisting each of a long slender stem, swelling out at intervals into knots resembling grains of rice, and tipped with a similar knot: this tufted extremity of the tail is of a silvery white colour, and the quills which compose it are of different lengths. It inhabits the islands of the Indian Archipelago, and resides in woods. It appears to have been first described by Seba, whose elegant figure has been generally copied by succeeding writers. If we except the gilded or Cape Mole, it seems to be almost the only quadruped yet known with changeable-coloured hair. Seba informs us that his figure of this animal was taken from a very fine and perfect specimen in the Museum of Mr. Vincent of Harlem, he having only a specimen of the tail in his own collection. He adds, that the species is mentioned by Bontius; and that others of good credit affirm that they have seen it in the Indian islands; and that in its gall-bladder is found a calculus which is esteemed equal in virtue to that of the Malacca Porcupine (Malacca Hedgehog), and is called by the Portuguese, *Piedra de Puerco.*

BRUSH-TAILED PORCUPINE.

Hystrix Fasciculata. *H. palmis tetradactylis, plantis petadactylis, cauda mediocri apice setis complanatis fasciculato.*
Porcupine with tetradactylous fore-feet, pentadactylous hind-feet, and tail terminated by a tuft of flattened bristles.
Le Porc-epic de Malaca. *Buff. suppl. 7. p. 303. pl. 77.*

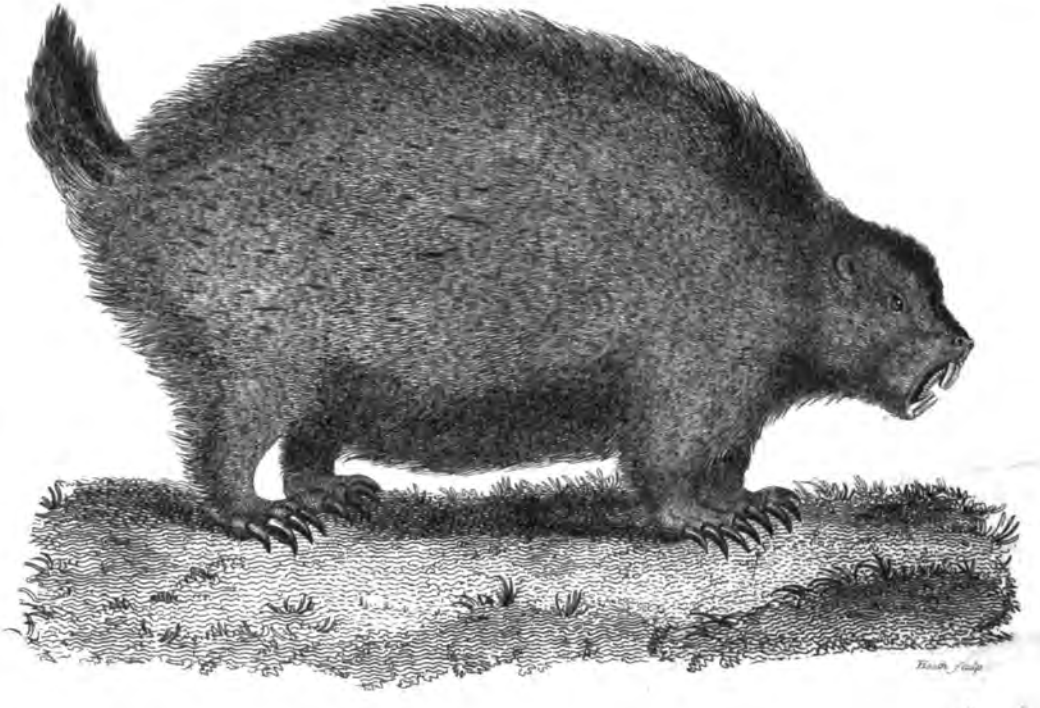
This animal, which is described and figured in the 7th supplemental volume of the Count de Buffon's History of Quadrupeds, is a native of Malacca. It differs, according to that author, from the Common Porcupine in several particulars, and especially in the form and length of its tail, which is naked, scaly, about a third of the length of the body, and terminated by a tuft of long flat hairs, or rather small white laminæ, resembling strips of parchment. The body measures fifteen or sixteen inches, and is consequently less than that of the European Porcupine; the head also is longer in proportion, and the snout, which is covered with a black skin, is furnished with whiskers of five or six inches in length: the eyes are small and black: the ears smooth, round, and naked: there are four toes, united by a common membrane, on the fore feet, with only a tubercle in place of a fifth toe: the hind feet have five toes, united in a similar manner by a membrane somewhat smaller than that of the fore feet: the legs are covered with blackish hair: the flanks and upper parts of the body are whitish, and covered with spines shorter than those of the

Common Porcupine, and of a peculiar shape, being a little flattened, and channeled with a longitudinal furrow; they are white at the point, and black in the middle, and many of them are black above and white below; and from this mixture results a varying cast of black and white over the whole body of the animal.

This species, like others of its genus (which Nature seems to have provided with defensive weapons only), possesses a kind of instinctive fierceness: when approached it stamps with its feet, and appears to inflate itself, raising and shaking its quills. It sleeps much by day, and is active only by night. It eats in a sitting posture; holding apples and other fruits between its paws, peeling them with its teeth: it is particularly pleased with stone fruits, and especially with apricots: it will also eat melons, and is never observed to drink. The above description was drawn up from two of these animals in a living state, at Paris, in the year 1777.

CANADA

PORCUPINE



CANADA PORCUPINE.

Hystrix Dorsata. *H. palmis tetradactylis, plantis pentadactylis, dorso præcipue spinoso, cauda subabbreviata.*
Short-spined Porcupine, with very long fur, tetradactylous fore-feet, pentadactylous hind-feet, spiny back, and shortish tail.
Hystrix Hudsonis. *H. aculeis sub pilis occultis, cauda brevi et crassa. Briss. Quadr.* 128.
Hystrix dorsata. *Lin. Syst. Nat. p.* 76.
L'Urson. *Buff.* 12. *p.* 426. *pl.* 55
Canada Porcupine. *Pennant Quadr.* 2. *p.* 126.

THIS species is a native of the northern parts of America, and is not uncommon in Canada. It is a short thick-bodied animal, approaching somewhat to the form of a Beaver, and is remarkable for the length and fulness of its fur, which is soft, of a dusky brown colour, and intermixed with longer and coarser hairs with whitish tips: the head is short; the nose blunt, the ears small and rounded, the teeth very strong, the limbs short, the feet armed with strong, crooked, sharp-pointed claws, hollowed or channelled beneath: on the fore feet are four toes, and on the hind five: the general length, from nose to tail, is about a foot and half: of the tail six inches. Edwards compares the size to that of a fox, though the shape is widely different. The spines are nearly hid in the fur, and are only visible on a close inspection: they are situated on the head and upper parts, as well as on the tail: the longest are those on the back, which measure about three inches, while those on the other parts are proportionally shorter:

they are strong and sharp-pointed, and so formed as to appear, when examined with a magnifier, as if barbed at the tips with numerous, small, reversed points or prickles, and are so slightly attached to the skin as to be loosened with great ease: and the animal will sometimes purposely brush against the legs of those who disturb it, leaving several of the spines sticking in the skin.

The first figure of the Canada Porcupine seems to have been given by Edwards, from a specimen brought from Hudson's Bay. It is said to feed principally on the bark of the juniper tree. It drinks by lapping, in the manner of a dog. It resides in holes under the roots of trees, on which, like some others of this genus, it often climbs, and is thus killed by the American Indians, who consider it as a useful article of food: they also use the quills by way of fringes, and for the purpose of ornamenting their boxes, &c.

Though the natural or genuine colour of this animal is brown, yet it is sometimes found perfectly white, or cream coloured: two very elegant specimens in this state occur in the Leverian Museum.

The Count de Buffon, with peculiar absurdity, affects to entertain a doubt whether the *iridescent porcupine (H. macroura. Lin.)*, described and figured by Seba under the title of *Histrix Orientalis singularis*, may not in reality be this species, and observes, that this would not be the only instance in which Seba has exhibited American animals as

as belonging to the East Indies. He then goes on to say, that the resemblances are very great, and the differences but slight. On the contrary, whoever takes the pains to collate the two animals will readily perceive that hardly any quadrupeds of the same genus can exhibit more strikingly different characters.

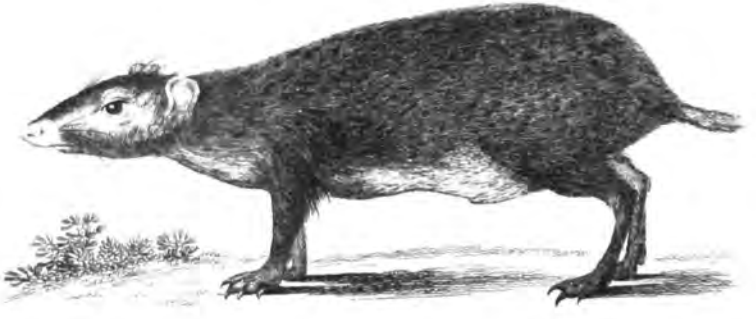
CAVIA. CAVY.

Generic Character.

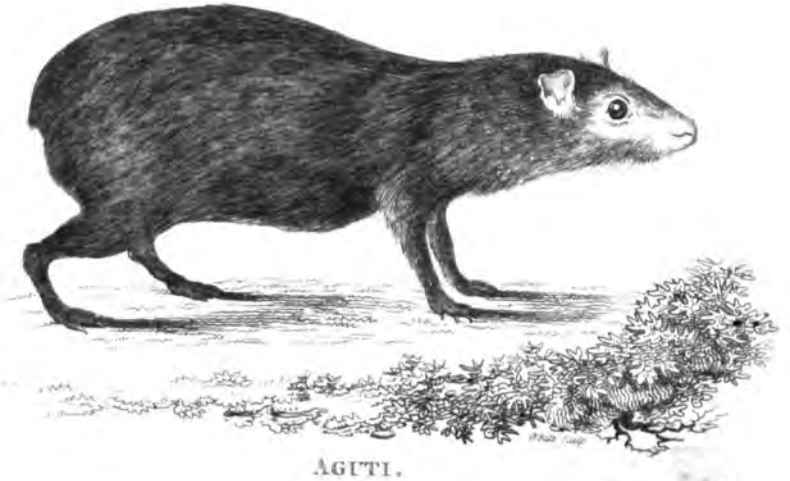
Dentes Primores duo cuneati.	*Front-teeth* two, wedge-shaped.
Molares octo.	*Grinders* eight.
Digiti plantarum 3—5. palmarum 4—5.	*Toes* on the fore feet from four to five: on the hind feet from three to five.
Cauda abbreviata aut nulla.	*Tail* very short, or none.
Clavículæ nullæ.	*Clavicles*, or Collar Bones, none.

THE animals of this, as well as of some other lately instituted genera, in the present order *Glires*, were by Linnæus comprised under the genus *Mus*; but since many animals of a very different habit, or general aspect, were thus crowded into one extensive genus, it was at length thought advisable, and even necessary, to divide them into distinct genera; instituted from the structure of the feet, the proportion of the limbs, &c. the teeth being nearly the same in all. The animals of the genus Cavia have generally a slow, and sometimes a leaping pace: they live, like the rest of the Glires, on vegetable substances, and in their natural state inhabit excavations under ground, or beneath the roots of trees; or other

VARIEGATED CAVY.



ACHOUCHI.



AGUTI.

Mar. Jan 1st. London Published by G. Wardley Fleet Street.

recesses which they either find ready prepared, or form for themselves. The most familiar example of this genus is the well-known little animal, called the Guinea-Pig, or Cavia Cobaya.

VARIEGATED CAVY.

Cavia Cobaya. *C. ecaudata ex albo et rufo vel nigro variegata. Lin. Syst. Nat. Gmel. p.* 122.

Tailless Cavy, generally variegated either with black and white, or rufous, &c. &c.

Mus Porcellus. *M. cauda nulla, palmis tetradactylis, plantis tridactylis. Lin. Syst. Nat. p.* 79.

Cuniculus Indicus. *Nieremb. Hist. Nat. p.* 160. *Aldr. dig. p.* 390, 391. *Jonst. Quadr.* 162.

Le Cochon D'Inde. *Buff.* 8. *p.* 1. *pl.* 1.

Restless Cavy. *Pennant Quadr.* 2. *p.* 89.

This species, from the beauty and variety of its colours and the neatness of its appearance, must have early attracted the attention of those Europeans who first visited South America; even the wild or native specimens, being variegated with black, white, reddish, or yellow, in the same manner as those which are so frequently reared in Europe. This little animal is very easily rendered tame, but is seldom observed to shew any very lively attachment to its benefactors; and is not distinguished by any remarkable degree of docility: it is, however, cleanly, harmless, and of a timid disposition. In a state of confinement it breeds almost every two months; and often produces a

very numerous offspring at a birth*. The young very soon acquire the necessary degree of strength and perfection of their species, though they continue to grow till seven or eight months. They, therefore, require but for a short time the attention of the parent, and even in the space of twelve hours can run about with as much agility as the full-grown animals. Since the female is furnished with only two teats, and yet produces a numerous offspring, it might at first appear as if Nature had but ill provided or proportioned the power of nourishment for the young; this, however, is by no means the case, since the young, in a few hours after birth, are capable of eating various vegetable substances, and consequently require but very little assistance on the part of the mother. In their native regions of South America they are chiefly found in Brasil. They willingly feed on a great variety of vegetable substances, and may be successfully reared on parsley, cabbage, sowthistles, &c. and if permitted to range in a garden, will readily support themselves, without any assistance. In winter they may be fed with bread, carrots, grain of various kinds, &c. They drink but very little, and, after eating, exhibit the appearance of rumination, in the same

* From four to ten or twelve. According to the Count de Buffon, a single pair might produce 1000 in one year, since they produce at least every two months; go with young only three weeks; and have been known to bring forth young when only two months old.

manner as the Hare. They are very tender animals, and susceptible of cold, and should therefore be provided with warm receptacles to retire into in bad weather. If fed too long on very succulent food, as cabbage, sowthistle, &c. they receive injury by it, and should be relieved by allowing them more solid food, as bread, grain, &c. They have often been used as an article of food, and are in some place considered as a delicacy. In their habits they are extremely neat, and may be frequently observed in the act of smoothing and dressing their fur, somewhat in the manner of a Cat. In their quarrels they not only bite but kick each other, like horses, with their hind feet. It is observed, that the male and female seldom sleep at the same time; but seem alternately to watch each other; the one sleeping while the other is feeding, &c. Their general voice is a sort of grunting squeak, and sometimes a shriller or sharper cry.

SPOTTED CAVY.

Cavia Paca. *C. caudata, pedibus pentadactylis, lateribus flavescente-lineatis. Lin. Syst. Nat. Gmel. p.* 120.
Tailed Cavy, with pentadactylous feet, and sides marked by rows of yellowish white spots.
Mus Paca. *M. cauda abbreviata, pedibus pentadactylis, lateribus flavescente-lineatis. Lin. Syst. Nat. p.* 81.
Paca. *Buff.* 10. *p.* 269. *pl.* 34. *and Suppl.* 3. *p.* 203. *pl.* 35.
Spotted Cavy. *Pennant Quadr. p.* 120.

THIS is a large species, measuring near two feet in lengh. It is found in Guiana, Brasil, and other parts of South America; inhabiting holes formed under ground, and principally near the banks of rivers. It is of a thick, clumsy form, somewhat resembling that of a pig; for which reason it has been sometimes called the Hog-Rabbet. The head is round; the muzzle short and black; the upper jaw longer than the lower; the lip divided like that of a hare; the nostrils large; the whiskers long; the eyes large and prominent, and of a brown colour; the ears short, moderately large, round, and naked; the neck thick; the body very plump, larger behind than before, and covered with coarse, short, thinly-scattered hair of a dusky colour, deepest on the back: the throat, breast, insides of the limbs, and belly, are of a dingy white; and on each side the body run five rows of roundish, slightly angular spots, situated pretty near each other: the legs are short; and the feet have five toes, four of which are armed with strong and sharp

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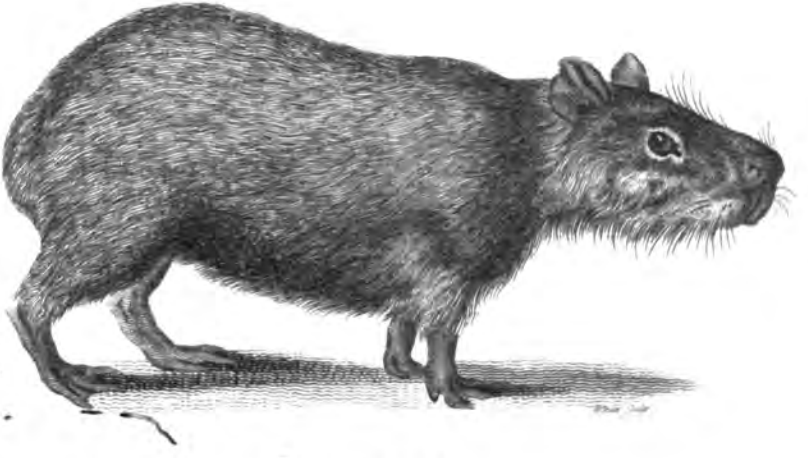
SPOTTED CAVY



CAPYBARA.

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claws; that on the fifth toe being very small: the tail is scarce visible, being a mere small conical projection of scarce half an inch in length. The Spotted Cavy is a nocturnal animal, residing in a solitary manner in his hole during almost the whole day. In a domestic state it readily feeds on almost any kind of vegetable diet, and is particularly fond of sugar and fruits. It is much esteemed as an article of food by the South Americans. It is subject to some variety in point of colour, and has been sometimes seen quite white. Its general length, when full-grown, is about two feet. The female is said to produce but one young at a birth,

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CAPYBARA.

Cavia Capybara. *C. ecaudata, plantis tridactylis palmatis. Lin. Syst. Nat. Gmel. p.* 123.
Tailless Cavy, with tridactyle palmated hind-feet.
Sus Hydrochæris. *S. plantis tridactylis, cauda nulla. Lin. Syst. Nat. p.* 103.
Cabiai. *Buff. 12. p.* 384. *pl.* 49.
Thick-nosed Tapir. *Pennant Synops. p.* 83.
Capybara. *Pennant Quadr. 2. p.* 88.

The characters of this animal are somewhat ambiguous, and it was formerly considered by Linnæus as a species of Hog, and was accordingly placed in that genus in the 12th edition of the Systema Naturæ, under the name of *Sus Hydrochæris*. Mr. Pennant, in his *Synopsis of Quadru-*

peds, placed it with the *Tapir,* though in his *History of Quadrupeds* he has stationed it among the rest of the Cavies. Dr. Pallas seems to have first ascertained its true situation in systematic arrangement, and has described it by the name of *Cavia Capybara,* the latter word being its Brasilian or native name.

The Capybara grows to the size of a hog of two years old, and is said to have been sometimes found of the weight of 100 pounds. It inhabits various parts of South America, though said to be more common in Brasil than in other regions. It feeds not only on various vegetables, and particularly on sugar canes, but also (contrary to the nature of most of the *Glires)* on fish; for which purpose, it frequents rivers, swimming with the same facility as the Otter, and, like that animal, dragging its prey out of the water, and eating it on the bank. These excursions in quest of prey are made principally during the night. The Capybara is, in general, considered as of a gentle disposition, and is readily tamed and made familiar: the female produces but one young at a birth. These animals are said to go in pairs, and are naturally shy and timid. Their voice resembles the braying of an ass. The Capybara runs but indifferently, on account of the length of its feet, and, therefore, commonly makes its escape by plunging into the water, and swimming to a great distance; and for this reason it is but seldom seen at any great distance from the banks of rivers.

A living specimen, in a half-grown state, was seen by the Count de Buffon, which had been brought into France from America. It was of a gentle disposition, and was fed with bread, milk, fruit, &c. From the number of teats, it should seem, according to that author, to be a very prolific animal: this, however, is contradicted by fact; since it is known to produce but one at a birth.

By some it is considered as a good article of food; but others assure us that it is of a rank and fishy taste: this may depend on the different age of the animal, as well as on the diet to which it has been accustomed.

The Capybara has a very large head, and a thick, divided nose, on each side are strong and large whiskers: the ears are small and rounded: the eyes large and black: the upper jaw longer than the lower: in each jaw are two very large and strong cutting teeth, and the grinders, which are eight in each jaw, are divided into three flat surfaces on the upper part: the neck is very short: the body short and thick, and covered with short, coarse, brown hair: the legs short; the feet long; the foremost being divided into four toes, connected to each other by a small web at the base, and tipped with thick claws, or rather small hoofs, at the extremities: the hind feet are formed in a similar manner, but are divided into three toes only: there is no appearance of a tail. Sometimes this animal, while feeding, sits up, in the manner of a squirrel, holding its

food between its paws. It is said sometimes to get into gardens by night, and commit great ravages among the esculent vegetables. According to Mr. Pennant, this species extends from the *Isthmus* of *Darien* to *Paraguay*.

AGUTI.

Cavia caudata, corpore ex rufo fusco, abdomine flavescente. Lin. Syst. Nat. Gmel. p. 121.

Tailed Cavy, with the body rufous brown, and the abdomen yellowish.

Mus Aguti. *M. cauda abbreviata, palmis tetradactylis, plantis tridactylis, abdomine flavescente. Lin. Syst. Nat. p.* 80.

Aguti vel Acuti Brasiliensibus. *Marcgr. bras. p.* 224.

Agouti. *Buff.* 8. *p.* 375. *pl.* 50.

Long-nosed Cavy. *Pennant Quadr.* 2. *p.* 94.

This species is peculiar to the warmer parts of South America, and is extremely common in Guiana. Its general size is that of a rabbet: the body is plump, and thicker behind than before: the head is rather small, and somewhat compressed laterally: the snout long and sharpish; the nose divided at the tip, and the upper jaw longer than the lower: the eyes round and black; the ears very short, broad, naked, and rounded: the neck rather long, but thick: the legs thin, almost naked, and blackish: the hind legs are longer than the fore, and have only three toes: the tail is extremely short, naked, and sometimes scarce visible: the hair on the whole animal is hard, strong, and shining, and is brown with a

cast of orange colour, with blackish freckles, being, in reality, a mixture of red, brown, and black: the rump is orange coloured. This animal's manner of moving resembles that of a hare, and its voice is like the grunting of a young pig. It feeds on various roots, nuts, fruit, &c. &c. and resides in woods, where it forms subterraneous burrows, and sometimes lodges in the hollows of trees.

According to Mons. de la Borde, a correspondent of the Count de Buffon, the Aguti is about the size of a hare: his skin is hard, and lasts very long when made use of as an upper-leather for shoes. His flesh is white, and nearly as good as that of the rabbet, having a similar taste and flavour; and whether old or young, it is always tender; but those which inhabit the sea-coasts are superior in this respect. They are taken in traps, or hunted with dogs. The Indians and negroes, who know how to allure them by whistling, or imitating their cries, kill as many as they please. When pursued, they conceal themselves, like rabbets, in the holes of old trees. They hold their food in their paws like squirrels. Their ordinary food, which they often conceal in the earth, to be used occasionally, are the nuts of the Maripa, the Tourlovri, the Corana, &c. and, after concealing these nuts, they often touch them not for six months. They multiply as fast as rabbets, producing three, four, and sometimes five young ones, during every season of the year. They live not in numbers in the same hole, but are either

found alone, or else the mother with her young. They are easily tamed, and will eat almost every thing. When in a domestic state, they remove not to any great distance, and always return to the house spontaneously; but constantly retain somewhat of their wild disposition. In general they remain in their holes during the night, unless the moon shines bright; but run about most of the day. There are some countries, as about the mouth of the Amazons, where these animals are so numerous as to be often met with in scores.

Var.?

LEPORINE CAVY.

Cuniculus caudatus auritus, pilis ex rufo et fusco mixtis rigidis vestitus. *Briss. Quadr.* 143.
Cuniculus Americanus. *Seb.* 1. *p.* 67. *pl.* 41. *f.* 2.?
Java Hare. *Catesb. Carol. append. pl.* 18.
Javan Cavy. *Pennant Quadr.* 2. *p.* 95.

THIS is by Mr. Schreber considered as a variety of the Aguti, from which it differs in being of a reddish colour above, with the breast and belly white: the legs are long: the hind part large, and the tail very short. It is of the size of a hare, and is a native of Surinam, and other parts of South America. It is altogether an American animal, and notwithstanding its common title of the Java Hare, is not found either in that island or Sumatra, as erroneously supposed by some.

ACOUCHY.

Cavia Acuschy. *C. caudata, corpore olivaceo. Lin. Syst. Nat. Gmel. p.* 121.
Tailed Cavy, with olive-coloured body.
Cuniculus minor caudatus olivaceus, Akouchy. *Barr. Fr. equin. p.* 113.
Acouchi. *Buff.* 15. *p.* 58. *and suppl.* 3. *p.* 211. *pl.* 36.
Olive Cavy. *Pennant Quadr.* 2. *p.* 95.

This animal, which is by some regarded as a variety of the Aguti, differs in being somewhat smaller, rather thinner, and entirely of an olive colour, paler or more inclining to whitish beneath: the tail is also longer than in the Aguti. It is a native of the same parts of South America with the Aguti, is of similar manners, and is also tamed with equal readiness. We are informed by Mons. de la Borde, that it does not attempt the water like the Aguti, but will rather suffer itself to be taken. Mons. de la Borde also adds, that it produces but one young at a time. Its voice resembles that of the Cavia Cobaya or Guinea-Pig.

ROCK CAVY.

Cavia Aperea. *C. ecaudata, corpore ex cinereo rufo. Lin. Syst. Nat. Gmel. p.* 122.
Tailless Cavy, with rufous-ash-coloured body.
Cuniculus (Brasiliensis) Aperea dictus. *Marcgr. Raj. Quadr. p.* 206.
Cuniculus Indicus femina. *Aldr. dig. p.* 393.
Rock Cavy. *Pennant Quadr.* 2. *p.* 90.

THIS animal (says the Count de Buffon), which is a native of Brasil, is neither a rabbet nor a rat, but seems to partake of both. It is a foot long by seven in circumference. Its general colour is the same with that of our hares, and its belly is white: its upper lip is divided in the same manner, and it has the same large cutting teeth, and whiskers round the mouth and on the sides of the eyes, but its ears are rounded like those of a rat, and so short that they exceed not a finger's breadth in height: the fore legs are not above three inches in length, and the hind legs are a little longer: the fore feet have four toes, covered with a black skin, and armed with small short claws: the hind feet have only three toes, and the middle one is the longest: it has no tail: the head is somewhat longer than that of a hare, and its flesh is like that of a rabbet, which it resembles in its manner of living: it likewise retires into holes: it does not, however, dig the earth

like the rabbet, but conceals itself in the clefts of rocks; and hence it is easily seized in its retreat.

The Rock Cavy is considered as an excellent article of food, and is even superior to the rabbet.

CASTOR. BEAVER.

Generic Character.

Dentes Primores superiores truncati, angulo transverso excavati.	*Front-teeth* in the upper jaw truncated, and excavated with a transverse angle.
Inferiores apice transversi.	In the lower jaw transverse at the tips.
Molares utrinque quatuor.	*Grinders* on each side four.
Cauda longa depressa squamosa.	*Tail* long, depressed and scaly.
Claviculæ perfectæ.	*Collar-bones* in the skeleton.

COMMON BEAVER.

Castor Fiber. *C. cauda ovata plana calva. Lin. Syst. Nat. Gmel. p.* 124.
Chesnut-coloured Beaver, with flat ovate naked tail.
Castor castanei coloris, cauda horizontaliter plana. *Briss. Quadr. p.* 133.
Castor. *Gesn. Quadr.* 309. *Aldr. dig.* 277.
Le Castor. *Buff.* 8. *pl.* 36.
Castor Beaver. *Pennant Quadr.* 2. *p.* 114.

THE Beaver is a native of the most northern parts of Europe and Asia, but is found most plentifully in North America. It is readily distinguished from every other quadruped by the remarkable structure of its tail, which is of an oval form, nearly flat, but rising into a slight convexity on its upper surface, perfectly void of hair,

COMMON BEAVER.

except at the base, and marked out into scaly divisions like the skin of a fish. The general length of the Beaver is about three feet, and of the tail nearly one foot. The colour of the animal is a deep chesnut, and the hair is very fine, smooth, and glossy. The Beaver, like other quadrupeds, sometimes varies in colour, and is occasionally found perfectly black. Instances have also occurred in which it has been found entire white, cream coloured, or spotted (as in some specimens of the Leverian Museum).

Of all quadrupeds the Beaver is considered as possessing the greatest degree of natural or instinctive sagacity in constructing its habitation; preparing, in concert with others of its own species, a kind of arched caverns or domes, supported by a foundation of strong pillars, and lined or plastered internally with a degree of neatness and accuracy unequalled by the art of any other quadruped. It does not appear that this extraordinary sagacity of the Beaver was known to the ancients, though they were well acquainted with the animal, which they killed chiefly for the sake of the medical drug *castoreum* or *castor*. It should seem, however, that the architecture of the Beaver is no where so conspicuous as in the northern parts of America, and that those of Europe do not in general exhibit equal talents in preparing their mansions.

The favourite resorts of the Beaver are retired, watery, and woody situations. In such places the animals assemble, to the number of some

hundreds; living in a kind of families, and building their arched mansions or receptacles. The general method of preparing which is detailed in a very pleasing manner by the Count de Buffon, who seems to have collected the best and fullest information on the subject.

"The Beavers (says this author) begin to assemble in the month of June or July, for the purpose of uniting into society. They arrive in numbers from all parts, and soon form a troop of two or three hundred. The place of rendezvous is generally the situation fixed for their establishment, and always on the banks of some water. If the waters be flat, and never rise above their ordinary level, as in lakes, the Beavers make no bank or dam; but in rivers or brooks, where the waters are subject to risings and fallings, they construct a bank, and by this artifice form a pond or piece of water, which remains always at the same height. The bank traverses the river, from one side to the other, like a sluice, and it is often from eighty to a hundred feet long, by ten or twelve broad at the base. This pile, for animals of so small a size, appears to be enormous, and supposes an incredible labour; but the solidity with which the work is constructed is still more astonishing than its magnitude. The part of the river where they erect this bank is generally shallow. If they find on the margin a large tree, which can be made to fall into the water, they begin with cutting it down, to form the principal part of their work. This tree is often thicker

than the body of a man. By gnawing the foot of the tree with their four cutting teeth they accomplish their purpose in a very short time, and always make the tree fall across the river. They next cut the branches from the trunk, to make it lie level. These operations are performed by the whole community. Several Beavers are employed in gnawing the foot of the tree, and others in lopping off the branches after it has fallen. Others, at the same time, traverse the banks of the river, and cut down smaller trees, from the size of a man's leg to that of his thigh. These they dress and cut to a certain length, to make stakes of them, and first drag them by land to the margin of the river, and then by water to the place where the building is carrying on. These piles they sink down, and interweave the branches with the larger stakes. This operation implies the vanquishing of many difficulties; for to dress these stakes, and to put them in a situation nearly perpendicular, some of the Beavers must elevate with their teeth the thick ends against the margin of the river, or against the cross-tree, while others plunge to the bottom, and dig holes with their fore feet to receive the points that they may stand on end. Whilst some are labouring in this manner, others bring earth, which they plash with their fore feet, and transport it in such quantities, that they fill with it all the intervals between the piles. These piles consist of several rows of stakes, of equal height, all placed opposite to each other, and extend from

one bank of the river to the other. The stakes facing the under part of the river are placed perpendicularly; but the rest of the work slopes upwards to sustain the pressure of the fluid, so that the bank, which is ten or twelve feet wide at the base, is reduced to two or three at the top. It has, therefore, not only the necessary thickness and solidity, but the most advantageous form for supporting the weight of the water, for preventing its issue, and for repelling its efforts. Near the top or thinnest part of the bank they make two or three sloping holes, to allow the surface-water to escape, and these they enlarge or contract, according as the river rises or falls; and when any breaches are made in the bank by sudden or violent inundations, they know how to repair them as soon as the water subsides.

"It would be superfluous, after this account of their public work, to give a detail of their particular operations, were it not necessary, in a history of these animals, to mention every fact, and were not the first great structure made with a view to render their smaller habitations more commodious. These cabins or houses are built upon piles near the margin of the pond, and have two openings, the one for going to the land, and the other for throwing themselves into the water. The form of the edifices is either oval or round, some of them larger, and some less, varying from four or five, to eight or ten feet diameter. Some of them consist of three or four stories, and their walls are about two feet thick, raised perpendicu-

larly upon planks, or plain stakes, which serve both for foundations and floors to their houses. When they consist of but one story, the walls rise perpendicularly only a few feet, afterwards assume a curved form, and terminate in a dome or vault, which serves them for a roof. They are built with amazing solidity, and neatly plastered both without and within. They are impenetrable to rain, and resist the most impetuous winds. The partitions are covered with a kind of stucco, as nicely plastered as if it had been executed by the hand of man. In the application of this mortar their tails serve for trowels, and their feet for plastering. They employ different materials, as wood, stone, and a kind of sandy earth, which is not subject to dissolution in water. The wood they use is almost all of the light and tender kinds, as alder, poplar, and willow, which grow generally on the banks of rivers, and are more easily barked, cut, and transported, than the heavier and more solid species of timber. When they once attack a tree, they never abandon it till they cut it down, and carry it off. They always begin the operation of cutting at a foot or a foot and half above the ground. They labour in a sitting posture; and besides the convenience of this situation, they enjoy the pleasure of gnawing perpetually the bark and wood, which are most agreeable to their taste; for they prefer fresh bark and tender wood, to most of their ordinary aliment. Of these provisions they lay up ample stores, to support them during the winter;

and it is then that they are most easily taken, by attacking the cabin on one hand, and at the same time watching at a hole made at some distance, where they are obliged to repair for the purpose of respiration. The continual habit of keeping their tail and posterior part in the water, appears to have changed the nature of their flesh. That of their anterior parts, as far as the reins, has the taste and consistence of the flesh of land or air animals; but that of the tail and hinder parts, has the odour and all other qualities of fish. The tail, which is a foot long, an inch thick, and five or six inches broad, is even an extremity or genuine proportion of a fish attached to the body of a quadruped; it is entirely covered with scales, and with a skin perfectly similar to those of large fishes; they may be scraped off with a knife, and after falling, they leave an impression on the skin, as in the case with all fishes.

"It is in the beginning of summer that the Beavers assemble. They employ the months of July and August in the construction of their bank and cabins. They collect in September their provisions of bark and wood; after which they enjoy the fruits of their labours, and taste the sweets of domestic happiness: knowing and loving one another from habit, from the pleasures and fatigues of a common labour, each couple join not by chance, nor by the pressing necessities of nature, but unite from choice and from taste. They pass together the autumn and the winter. Perfectly satisfied with each other, they never

separate. At ease in their cabins, they go not out but upon agreeable or useful excursions, to bring in supplies of fresh bark, which they prefer to what is too dry or too much moistened with water. The females are said to go pregnant for four months: they bring forth at the end of winter, and generally produce two or three young. About this time they are left by the males, who retire to the country to enjoy the pleasures and the fruits of the spring. They return occasionally to their cabins, but dwell there no more. The mothers continue in the cabins, and are occupied in nursing, protecting, and rearing their young, which at the end of a few weeks are in a condition to follow their dams. The females, in their turn, make their excursions, to recruit themselves by the air, by eating fishes*, crabs, and fresh bark, and in this manner pass the summer upon the waters and in the woods. They assemble not again till autumn, unless their banks or cabins be overturned by inundations; for when accidents of this kind happen, they suddenly collect their forces, in order to repair the breaches which have been made."

Besides the associated Beavers there are others that live solitary, and instead of constructing cabins, or vaulted and plastered receptacles, con-

* This is a particular which seems to want confirmation, and it is now generally believed that the Beaver does not feed on fish, but merely on vegetable substances; yet Kalm assures us that he has seen tame Beavers which have been made use of for catching fish.

tent themselves with forming holes in the banks of rivers. The fur of these, which are commonly termed terrier beavers, is considered as far less valuable than that of the associated animals.

The Beaver, when taken young, may readily be tamed, and in that state appears to be an animal of a gentle disposition, but does not exhibit any symptoms of superior sagacity.

In Europe the favourite food of the Beaver is the bark of the poplar, the aspin, the birch, and other soft woods. In America, the Magnolia glauca and the Fraxinus Americana are said to be particularly selected. It also feeds on various roots, and especially on those of the Acorus Calamus, or Calamus aromaticus.

Beavers are said to make their principal excursions by night, and to sit by day near the mouths of their dwellings on sedges, &c. with their tails immersed in the water. They abound, according to Mr. Pennant, in the Asiatic part of the Russian empire; and are found in companies, or associated, about the Konda, and other rivers which flow into the Oby. They occur in a dispersed or *terrier* state in the wooded parts of independent Tartary, and in the chains of mountains which border on Siberia.

CHILI BEAVER.

Castor Huidobrius. *C. cauda longa compresso-lanceolata, palmis lobatis, plantis palmatis. Molina. Hist. Chil. p.* 253.

Beaver with long compresso-lanceolate hairy tail, lobated fore-feet, and palmated hind-feet.

Guillino Beaver. *Pennant Quadr.* 2. *p.* 120.

THIS is a species peculiar to South America, and appears to have been first described by Molina in his natural history of Chili. He informs us that it is found in the very deep lakes and rivers of that country, and feeds principally on fish and crabs. Its length from nose to tail is about three feet; the head is of a squarish form; the eyes small; the ears rounded and short, and the snout obtuse: in each jaw are two sharp and strong cutting teeth, and the grinders are like those of the Common Beaver. The body is very broad, and covered, like the Common Beaver, with two sorts of hair; the shortest or softest of which is superior to that of most other quadrupeds, and is in high esteem with the manufacturers, being wrought into a kind of cloth, which has the softness of velvet; and is also used in the manufacture of hats. The colour of this animal is grey above, and whitish beneath; the toes of the fore feet are lobated, or bordered with a membrane, and the hind feet are webbed: the toes are five in number on all the feet. The tail is of a compressed lanceolate form and hairy. It is a bold and even fierce animal, and has the power of con-

tinuing a great while under water. It does not construct any regular habitation like the Common Beaver, nor does it afford any castor. The female is said to produce from two to three young at a birth. It is called in Chili by the name of *Guillino*.

MUS. RAT.

Generic Character.

Dentes Primores superiores cuneati.	*Upper Front-teeth* wedge-shaped.
Molares utrinque tres, rarius duo.	*Grinders* on each side three, sometimes only two.
Claviculæ perfectæ.	*Clavicles*, or collar-bones in the skeleton.

THIS numerous tribe constitutes a formidable phalanx against which mankind finds it necessary to employ the various artifices of extirpation, in order to lessen the ravages occasionally suffered by its depredations. In our own island the black and the brown rats, the field and domestic mice are the principal destroyers; but in other parts of Europe, as well as in the hotter regions of Asia, Africa, and America, many other species still more noxious and formidable are found. The different kinds vary considerably in their manner of life, some confining themselves entirely to vegetable food, while others are polyphagous, destroying with indiscriminate avidity almost any animal or vegetable substance to which they can gain access. Their pace is, in general, rather quick, and their most usual residence is in obscure subterraneous retreats, from

which they principally emerge by night. They are of a prolific nature, and the females are furnished with numerous teats. Some species are migratory; others local or attached to the same residence. Lastly, some are of an uncouth form and disagreeable appearance, while others are remarkable for the elegance of their aspect and colours. In the 12th edition of the Systema Naturæ, Linnæus included in this genus the Jerboas, the Cavys, and several other animals which are now formed into distinct genera. This mode of distribution might perhaps be carried still farther; the habit or appearance of some species differing very considerably from that of the major part of the tribe.

With flattened Tails.

MUSK RAT.

Mus Zibethicus. *M. cauda longa compresso-lonceolata, pedibus fissis. Lin. Syst. Nat. Gmel. p.* 125.
Ferruginous-brown Rat, with long compressed-lanceolate tail, and unwebbed feet.
Rat musqué. *Sarrasin act. Paris,* 1725. *p.* 323. *t.* 11. *f.* 1, 2.
Castor zibethicus. *Lin. Syst. Nat. ed.* 12. *p.* 79.
Ondatra. *Buff.* 10. *p.* 1. *pl.* 1.
Musk Beaver. *Pennant Quadr.* 2, *p.* 119.

In the Memoirs of the French Academy of Sciences for the year 1725 there is a complete and excellent description of this animal by Mons.

WATER RAT.

MUSK RAT.

1801 June 1st London Published by G. Kearsley Fleet Street

Sarrazin *, at that time king's Physician at Quebec. It is from the above description that the Count de Buffon has drawn up the major part of his own account, and indeed it does not appear possible to add any thing material to what Mons. Sarrazin has delivered. This animal is of the size of a small rabbet, and is extremely common in Canada. Its head is short, like that of a water-rat; the eyes large; the ears very short, rounded, and covered internally as well as externally with hair. It has, like the rest of this tribe; four very strong cutting teeth, of which those in the lower jaw are near an inch long; those in the upper somewhat shorter: the fur on the whole body is soft and glossy, and beneath is a fine fur, or thick down, as in the Beaver: the toes on all the feet are simple, or without membranes, and are covered with hair: the tail is nearly as long as the body, and is of the same form with that of the Sorex moschatus or Musk Shrew, being laterally compressed; it is nearly naked, and covered with small scales intermixed with scattered hairs. The general colour of the animal is a reddish brown; of the tail ash colour. In its general appearance this animal greatly resembles the Beaver, except in size, and in the form of its tail. It has also similar instincts and dispositions; living in a social state in the winter, in curiously-constructed huts or ca-

* Sarrazin was also an excellent botanist, and the remarkable genus Sarracenia was instituted in honour of him by Tournefort, to whom he had sent specimens from Canada.

bins, built near the edge of some lake or river. These huts are about two feet and a half or three feet in diameter, plastered with great neatness in the inside, and covered externally with a kind of basket-work, of rushes, &c. interlaced together so as to form a compact and secure guard, impermeable by water. During the winter these receptacles are generally covered by several feet of snow, and the animals reside in them without being incommoded by it, several families commonly inhabiting each cabin. It is added that the insides of the receptacles are furnished with a series of steps, to prevent them from being injured by inundations. These animals do not lay up a stock of provisions like the Beaver, but form subterraneous passages beneath and round their cabins, to give themselves an opportunity of procuring occasional supplies of roots, herbage, &c. According to Mons. Sarrazin the animal is particularly calculated by Nature for its subterraneous habits; having a great muscular force in its skin, which enables it to contract its body occasionally into a small volume: it has also a great suppleness in the false ribs, which easily admit of contraction, so that it is enabled to pass through holes impervious to much smaller animals than itself.

During the summer these creatures wander about in pairs, feeding voraciously on herbs and roots. Their odour, which resembles that of musk, is so strong as to be perceived at a considerable distance; and the skin, when taken from the body, still retains the scent: this musky odour

is owing to a whitish fluid deposited in certain glands situated near the origin of the tail. It has been supposed that the Calamus aromaticus, or sweet flag (Acorus Calamus. Lin.), which these animals select as a favourite food, may contribute to their fragrant smell. They walk and run in an awkward manner, like the Beaver, and they cannot swim so readily as that animal, their feet being unfurnished with webs. Their voice is said to resemble a groan. The females produce their young towards the beginning of summer, and have five or six at a time; and these, if taken early, are easily tamed, and become very sportive; and it is remarkable that the tail, which in the full-grown animal is as long as the body, is at that period very short.

The fur of this species is greatly esteemed as a commercial article, resembling that of the Beaver. Linnæus in the twelfth edition of the Systema Naturæ ranked the animal under the genus Castor; and Mr. Pennant has followed his example. Mr. Schreber, however, considers it as belonging in strict propriety to the present genus.

COYPU RAT.

Mus Coypus. *M. cauda mediocri subcompressa pilosa, plantis palmatis. Lin. Syst. Nat. Gmel. p.* 125.
Brown Rat, with slightly compressed hairy tail of middling length, and webbed hind feet.
Mus Coypus. *Molina Hist. Chil. p.* 255.
Coypu Rat. *Pennant Quadr.* 2. *p.* 177.

The first describer of this animal was Molina, who informs us that it is an inhabitant of the waters of Chili; that it has the general appearance of an Otter, being of the same size and colour; but that in its teeth it agrees with the rat tribe: the feet are each furnished with five toes; those of the hind feet being connected by a web: the ears are rounded, the nose longish and covered with whiskers, and the tail thick and flattish on the sides. This animal lives occasionally on land as well as water; sometimes frequenting houses, and is easily tamed. The female produces five or six young at a birth.

With round naked Tails.

Mus Pilorides. *M. cauda longiuscula squamata truncato-obtusa, corpore albido. Lin. Syst. Nat. Gmel. p.* 126.
Whitish Rat, with longish, scaly, obtusely-truncated tail.
β. Castor cauda lineari tereti. *Brown Jam. p.* 484.?
Piloris. *Buff.* 10. *p.* 2.

This species is found in India and the Indian islands, and in size nearly equals the Guinea-Pig. Its colour is whitish, with a cast of grey-ferruginous on the back, and of cinereous on the abdomen: the tail is longish, nearly naked, scaly, and obtuse at the extremity. A variety of this animal is found in the American islands, which seems to differ from the above in being of a darker colour on the back, and in having a much shorter tail. Perhaps it may be a distinct species, but the history of both seems at present not sufficiently clear to enable us to determine this point.

CARACO RAT.

Mus Caraco. *M. cauda longa squamosa obtusiuscula, corpore griseo, plantis subsemipalmatis. Lin. Syst. Nat. Gmel. p.* 126.
Grey Rat, with long, scaly, somewhat obtuse tail, and slightly semipalmated hind feet.
Mus Caraco. *Pall. glir. p.* 91. *n.* 39. *p.* 335. *t.* 23.
American Rat. *Pennant Quadr.* 2. *p.* 180.

The Caraco, first described by Dr. Pallas, so extremely resembles the brown or Norway rat, that at first sight it might be mistaken for that animal; but on an accurate survey, it will be found that the head is rather longer and sharper in proportion; the upper jaw much longer than the lower, and the lip very much divided: the teeth are not so strong as in the Norway rat, and the tail is considerably shorter. This species abounds in the eastern parts of Siberia, frequenting the banks of rivers, and swimming very readily, so that it may be considered as in a manner amphibious. Dr. Pallas supposes this species to have migrated from the southern parts of China. The length of the Caraco is six inches, and of the tail four and a half or rather more. Its colour is similar to that of the brown or Norway rat.

Mr. Pennant supposes his *American Rat* to be the same species with the Caraco. It inhabits North America, and in size, colour, &c. seems to agree with it. Mr. Pennant describes it from a specimen in the Leverian Museum.

BLACK RAT.

NORWAY RAT.

18th Jan.y 1st London Published by G.Kearsley, Fleet Street.

NORWAY RAT.

Mus Decumanus. *M. cauda longissima squamata, corpore setoso grisco subtus albido. Lin. Syst. Nat. Gmel. p.* 127.
Grey stiff-haired Rat, with very long scaly tail, and body whitish beneath.
Surmulot. *Buff.* 8. *p.* 206. *pl.* 27.
Brown Rat. *Pennant Quadr.* 2. *p.* 178.
Norway-Rat. *Brit. Zool. p.* 102.

This domestic species, which is now become the common rat of our own island, and is popularly known by the name of the Norway Rat, is supposed to be a native of India and Persia, from which countries it has been imported into Europe. In England it seems to have made a national conquest over the black rat, which is now become rare in comparison. The brown rat is larger than the black rat, measuring nine inches from the nose to the tail, which is of the same length, and marked into about two hundred rings or circular spaces: the colour of the animal is a pale tawny grey, whitish beneath: the fore feet have four toes, with a claw in place of a fifth. It is a bold and voracious animal, and commits great havoc in granaries, &c. Sometimes it takes up its residence in the banks of waters, and swims occasionally with almost as much facility as the water rat, or *Mus amphibius*. In its general manner of life it agrees with the black rat; and not only devours grain and fruits, but preys on poultry, rabbets, and various other animals. It is a very prolific species, and produces from ten

to twelve or fourteen, or even sometimes eighteen, young at a time *. When closely pursued it will sometimes turn upon its adversary, and bite with great severity. It seems to have made its first appearance in England about seventy years ago, and is still much less frequent in France and some other parts of the continent than the black rat. In France, according to Buffon, it was first observed at Chantilly, Marly-la-Ville, and Versailles, where it committed great ravages. This author affirms that it breeds three times a year.

BLACK RAT.

Mus Rattus. *M. cauda longissima squamosa, corpore atro subtus canescente. Lin. Syst. Nat. Gmel. p.* 127.
Blackish Rat, ash-coloured beneath, with very long scaly tail.
Mus domesticus major. *Gesn. Quadr. p.* 731. *Aldr. dig. p.* 415.
Rat. *Buff.* 8. *p.* 278. *pl.* 36.
Black Rat. *Pennant Quadr.* 2. *p.* 176.

This species, like the former, though now so common in most parts of Europe, is supposed to have been originally introduced from India and Persia. Its general length, from nose to tail, is seven inches, and of the tail eight inches: the colour of the head and whole upper part of the body is a dark iron or blackish grey: the belly is of a dull ash-colour: the legs are dusky, and

* Pennant Brit. Zool.

very slightly covered with hair: the fore feet, as in the brown rat, have only four toes, with a small claw in place of a fifth: the tail is nearly naked, coated with a scaly skin, and marked into numerous divisions or rings. Like the former species this animal breeds frequently, and commonly brings about six or seven young at a time. Sometimes they increase so fast as to overstock the place of their abode, in which case they fight and devour each other. It is said that this is the reason why these animals, after being extremely troublesome, sometimes disappear suddenly. Various are the methods made use of for the expulsion of rats from the places they frequent; among which none is more singular than that mentioned by Gesner, who tells us he had been informed that if a rat be caught and a bell tied round its neck, and then set at liberty, it will drive away the rest wherever it goes. This expedient appears to be occasionally practised in modern times with success*. Its

* A gentleman travelling through Mecklenburgh about thirty years ago, was witness to the following curious circumstance in the post-house in New Stargard. After dinner the landlord placed on the floor a large dish of soup, and gave a loud whistle. Immediately there came into the room a Mastiff, a fine Angora Cat, an old Raven, and a remarkably large Rat, with a bell about its neck. The four animals went to the dish, and without disturbing each other, fed together; after which the Dog, Cat, and Rat, lay before the fire, while the raven hopped about the room. The landlord, after accounting for the familiarity which existed among the animals, informed his guest that the Rat was the most useful of the four, for the noise he made had completely freed the house from the rats and mice with which it was before infested.

greatest natural enemy is the weesel, which pursues it into all its recesses, and destroys it. A very small variety of this species, not much larger than a mouse, is said by Dr. Pallas to be found about the deserts in the lower parts of the Volga. Like many other quadrupeds, the rat is sometimes seen perfectly white, in which case it has red eyes. The white rat, however, as we are assured by Mr. Schreber, does not always produce young ones of a similar colour; so that such varieties can hardly be considered as permanent. This is proved from an observation of Professor Herman, who having kept a pregnant white rat for some time, found that the young ones were of the usual colour of their species.

The Rat is supposed to be a native of North America, as well as of Europe, but it is said that South America was entirely free from it, till it was imported there in ships from Europe, in the year 1554.

BANDICOTE RAT.

Mus Malabaricus. *M. griseus, auriculis rotundatis nudis, digitis plantarum exterioribus brevioribus.*

Grey Rat, with naked rounded ears, and the two exterior toes of the hind feet shorter than the rest.

This is a very large species, being at least equal, if not superior, to a rabbet in size. In its shape and general appearance it seems most to resemble the Norway rat. Its colour is a pale

cinereous brown; the ears thin, nearly bare, and rounded; the snout rather long; the fore feet shaped like those of the Norway rat, with four toes, and a claw in place of a fifth: the hind feet have five toes, of which the two exterior are considerably shorter than the rest: the tail is above eleven inches in length. This species is said to be very common about the coasts of the Malabar country. At Pondicherry it is frequent, infesting houses like the brown rat. Its voice is said to resemble the grunting of a pig.

PERCHAL RAT.

Mus Perchal. *M. fusco-ferrugineus, subtus cinereus, pedibus posterioribus majoribus.*
Ferruginous brown Rat, with the hind-legs larger than the fore.
Le Rat Perchal. *Buff. suppl. 7. p. 276. pl. 69.*

This species is a native of India, and in its general appearance resembles the Norway rat, but is of a longer shape, with a thicker and shorter tail in proportion. It is of a deep subferruginous brown above, and of a greyish cast beneath: the hind legs are larger than the fore: the ears naked and rounded, and the nose rather blunt. This Rat is said to be very numerous about Pondicherry, infesting houses in the same manner as the rats of Europe. It seems to have been first described by Mons. Sonnerat, and is evidently allied to the Bandicote rat. Both species are said to be occasionally eaten by the natives.

COMMON MOUSE.

Mus Musculus. *M. cauda elongata subnuda, palmis tetradactylis, plantis pentadactylis, pollice mutico. Lin. Syst. Nat. p.* 81.
Brown Mouse, ash-coloured beneath, with tetradactylous fore-feet, pentadactylous hind-feet, and long nearly naked tail.
Souris. *Buff. 7. p. 309. pl. 39. and Suppl. 3. p.* 181. *pl.* 30.
Common Mouse. *Pennant Quadr. 2. p.* 184.

THE manners and appearance of this little animal are so universally known, that it seems almost unnecessary to particularise it by a formal description. It is a general inhabitant of almost every part of the old continent, but it is doubtful whether it be originally a native of America, though now sufficiently common in many parts of the new world, as well as in many of its scattered islands.

The Mouse, though wild and extremely timid, is not of a ferocious disposition, but may be easily tamed, and soon after it has been taken, will begin to feed without fear, in the immediate presence of its captors. The white variety is frequently kept in a tame state, and receives an additional beauty from the bright red colour of its eyes; a particularity which generally accompanies the white varieties, not only of this tribe, but of many other quadrupeds.

The Mouse is a prolific animal: the experiment of Aristotle is well known, and often quoted. He placed a pregnant mouse in a vessel of grain, and after a short space, found in it no less than

COMMON MOUSE.

COMMON MOUSE.

Hairs of Mice
by the Microscope

WHITE MOUSE.

the number of 120, all which, he concluded, were the descendants of the mouse he had inclosed.

The fur of the Mouse is remarkably soft and elegant, and the structure of the hair in this animal, as well as in the rat, and probably of many others of this genus, is singularly curious; each hair, when microscopically examined, appearing internally divided into a kind of transverse partitions, as if by the continuation of a spiral fibre; a structure very different from that of the hair of most other animals, and of which the particular nature seems not very distinctly understood.

Derham, in his Physico-Theology, conceives that this mechanism of a spiral fibre may serve for the "gentle evacuation of some humour out of the body," and adds, that "perhaps the hair serves as well for the insensible perspiration of hairy animals as to fence against cold and wet." Whatever be the real nature or use of the above structure, its appearance cannot fail to excite astonishment in those who take the pains of examining it with a good microscope. In the annexed plate are introduced some figures of the hairs of a Mouse, highly magnified, in order to give a clear idea of this curious appearance.

In Aldrovandus, who relates the circumstance from Gesner, we meet with a direction for changing, as it were, a mouse into a cat, by making it the incessant persecutor and enemy of the rest of its species. This is to be effected by placing several mice together in a vessel, without food; when, after a certain space, they will be so stimu-

lated by hunger as to destroy each other: the surviving animal being then liberated, will, according to this author, become the most destructive enemy of his own tribe, and will kill every one he meets. Another singular and most cruel experiment is quoted by Aldrovandus from Mizaldus, who tells us, that if two or three mice are shut up in an earthen pot, and placed over a fire, the shrill cries which they utter will attract the mice in the other parts of the house, and cause them to precipitate themselves into the fire. Whatever truth there may be in this experiment, it is certain that, on the shrill cry of distress uttered by one of these animals kept with several others in a cage, the rest will frequently attack and destroy it.

WOOD MOUSE.

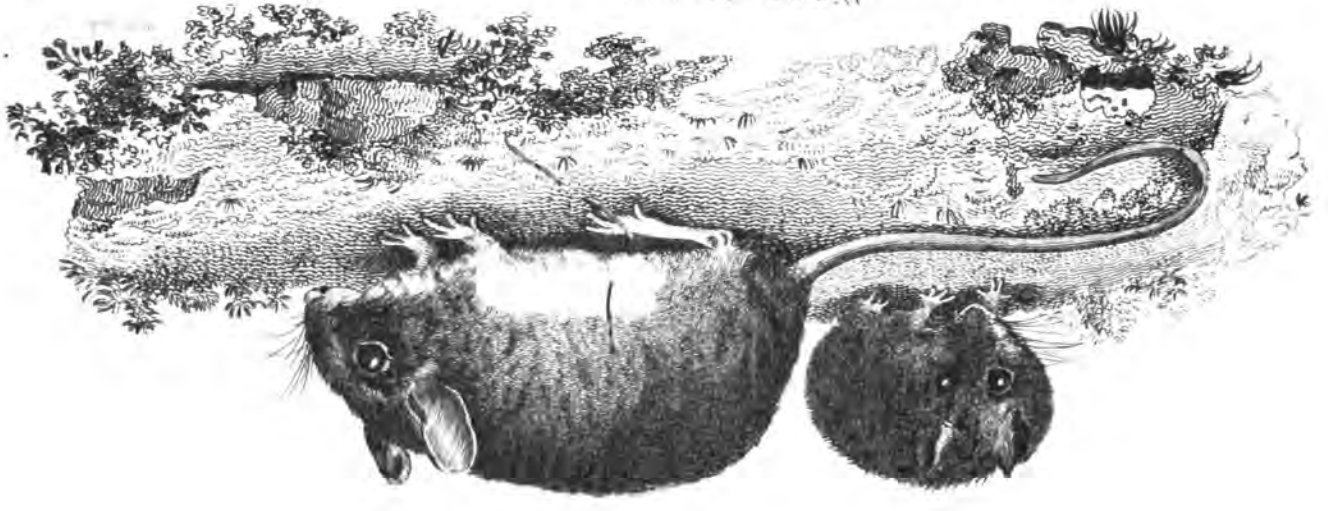
Mus Sylvaticus. *M. cauda longa squamosa, corpore grisco-lutescente subtus lateribusque abrupte albo. Lin. Syst. Nat. Gmel. p.* 129.

Yellowish-brown Mouse, with long naked tail, and body white beneath, the colours being abruptly separated on the sides.

Field Rat. *Pennant Quadr.* 2. *p.* 184.
Brit. Zool. 1. *p.* 105.

Mulot. *Buff.* 7. *p.* 325. *pl.* 41.

This animal chiefly frequents dry and elevated grounds, and is found in woods and fields in great plenty. It appears to be common in all the temperate parts of Europe, and even in Russia. It sometimes varies in size, individuals being occa-



sionally met with which exceed the rest in magnitude, though differing in no other respect. Its general length is about four inches and a half from nose to tail, and the tail, which is slightly covered with hair, measures four inches. The colour of the animal is a yellowish brown above and whitish beneath; the colours being pretty distinctly marked or separated: the eyes are full and black, and the snout rather blunt. These animals retire into holes among brushwood, and under the trunks of trees, where they amass great quantities of acorns, nuts, and beech-mast. According to Buffon, a whole bushel has sometimes been found in a single hole. These holes are about a foot or more under ground, and are often divided into two apartments, the one for living in along with their young, the other for a magazine of provisions. Considerable damage is often done to plantations by these animals, which carry off new-sown acorns, &c. The Count de Buffon affirms, that in France more mischief is done by these creatures than by all the birds and other animals put together; and adds, that the only way to prevent this is by laying traps, at ten paces asunder, through the whole extent of the sown ground. No other apparatus, he says, is necessary than a roasted walnut, placed under a stone supported by a stick: the animals come to eat the walnut, which they prefer to acorns, and as the walnut is fixed to the stick, whenever they touch it the stone falls and kills them. The same expedient may be as successfully used for the

destruction of the short-tailed field mouse, which likewise commits great havoc in fields and plantations. When the Count de Buffon first practised this experiment, he desired that all the field mice thus taken in traps might be brought to him, and found with astonishment, that above 100 were taken each day from a piece of ground consisting only of about forty French arpents. From the 15th of November to the 8th of December above two thousand were destroyed in this manner. When the frost becomes severe, they retire into their holes, and feed on the stores they have collected. They abound, like many other animals of this genus, chiefly in autumn, and are far less common in the spring; for if provisions happen to fail them in the winter, it is thought that they destroy each other; a circumstance which is known occasionally to take place in many other species.

The long-tailed field mouse is a very prolific animal, breeding more than once a year, and often producing litters of ten at a time. In one of their holes have been found two females, with twenty young. Specimens have sometimes been seen perfectly white, with red eyes.

Var. ?

AMERICAN LONG-TAILED FIELD MOUSE.

Mr. Pennant adds this to the former species, imagining it to be a variety. It is similar in

most points to the European animal, but the hind legs are longer in proportion: a dark stripe runs down the back; the cheeks and sides are orange coloured, and the under parts are of a snowy whiteness; the ears are large, naked, and open; the whiskers very long, some of the hairs being white and some black; the tail dusky above, and whitish beneath. It is often found in the province of New York.

RUSTIC MOUSE.

Mus Agrarius. *M. cauda longa squamosa, corpore lutescente, striga dorsali nigra. Lin. Syst. Nat. Gmel. p. 130. Pall. Glir. p. 95.*

Yellowish-brown Mouse, with long scaly tail and black dorsal streak.

Rustic Mouse. *Pennant Quadr. 2. p. 189.*

This species is found in Germany, as well as in Russia and the more temperate parts of Siberia, inhabiting corn-fields, and frequenting granaries, &c. in the manner of the common field mouse. It sometimes appears in immense multitudes in particular seasons, and devours great quantities of grain. It is often found in company with the *common mouse*, the *harvest mouse*, and the *wood mouse*, and sometimes gets into houses, where it becomes so bold as to seize the very bread from the table, without shewing any symptoms of fear. This species burrows under ground, and collects provision for its winter sustenance, which it de-

posits in the end or chamber of its burrow. It is found of a much larger size in the cultivated regions about the river Ob and Jenesei than elsewhere. In general it is rather less than the field mouse, and is of a ferruginous colour above, and whitish beneath: on the back is a dusky line: the head is oblong, the nose sharp, and the ears small and lined with fur: above each foot is a dusky circle, and the tail is only half the length of the body.

HARVEST MOUSE.

Mus Messorius. *M. supra ferrugineus, subtus albus, cauda longa subpilosa, auriculis vellere longioribus.*

Ferruginous Mouse, white beneath, with long slightly hairy tail, and ears longer than the fur of the head.

Harvest Mouse. *Pennant Quadr. 2. p. 384.*
Brit. Zool. 1. p. 107.
White's Selborne, 35.

THIS small species seems to have escaped the notice of British naturalists till it was observed by the late Mr. Gilbert White, of Selburne, in Hampshire, in which county it is frequent. Mr. White, in the year 1767, communicated the animal to Mr. Pennant, who introduced it into the *British Zoology*.

"These mice," says Mr. White, "are much smaller and more slender than the *mus domesticus medius* of *Ray*, and have more of the squirrel or dormouse colour: their belly is white; a strait

line along their sides divides the shades of their back and belly. They never enter into houses; are carried into ricks and barns with the sheaves; abound in harvest; and build their nest amidst the straws of corn above ground, and sometimes in thistles. They breed as many as eight at a litter, in a little round nest composed of the blades of grass or wheat. One of these nests I procured this autumn (1767), most artificially platted, and composed of the blades of wheat; perfectly round, and about the size of a cricket ball; with the aperture so ingeniously closed, that there was no discovering to what part it belonged. It was so compact and well filled, that it would roll across the table without being discomposed, though it contained eight little mice that were naked and blind. As this nest was perfectly full, how could the dam come at her litter respectively, so as to administer a teat to each? Perhaps she opens different places for that purpose, adjusting them again when the business is over; but she could not possibly be contained herself in the ball with her young, which moreover would be daily increasing in bulk. This wonderful progeant cradle, an elegant instance of the effects of instinct, was found in a wheat field, suspended in the head of a thistle."

Mr. White adds, that "though these animals hang their nests for breeding up amidst the straws of standing corn, above ground, yet in the winter they burrow deep in the earth, and make warm beds of grass; but their grand rendezvous

seems to be in corn-ricks, into which they are carried in harvest." A neighbour of Mr. White's housed an oat-rick, in which were some hundreds assembled under the thatch. The measure of the animal is just two inches and a quarter from nose to tail, and the tail just two inches long. Two of them in a scale just weighed down a copper halfpenny, which is about the third of an ounce avoirdupois, so that they may be considered as the smallest of the British quadrupeds.

MINUTE MOUSE.

Mus Minutus. *M. cauda longa squamosa, corpore supra ferrugineo subtus albido. Pall. Glir. p. 95. Lin. Syst. Nat. Gmel. p. 130.*

Ferruginous Mouse, whitish beneath, with long scaly tail.

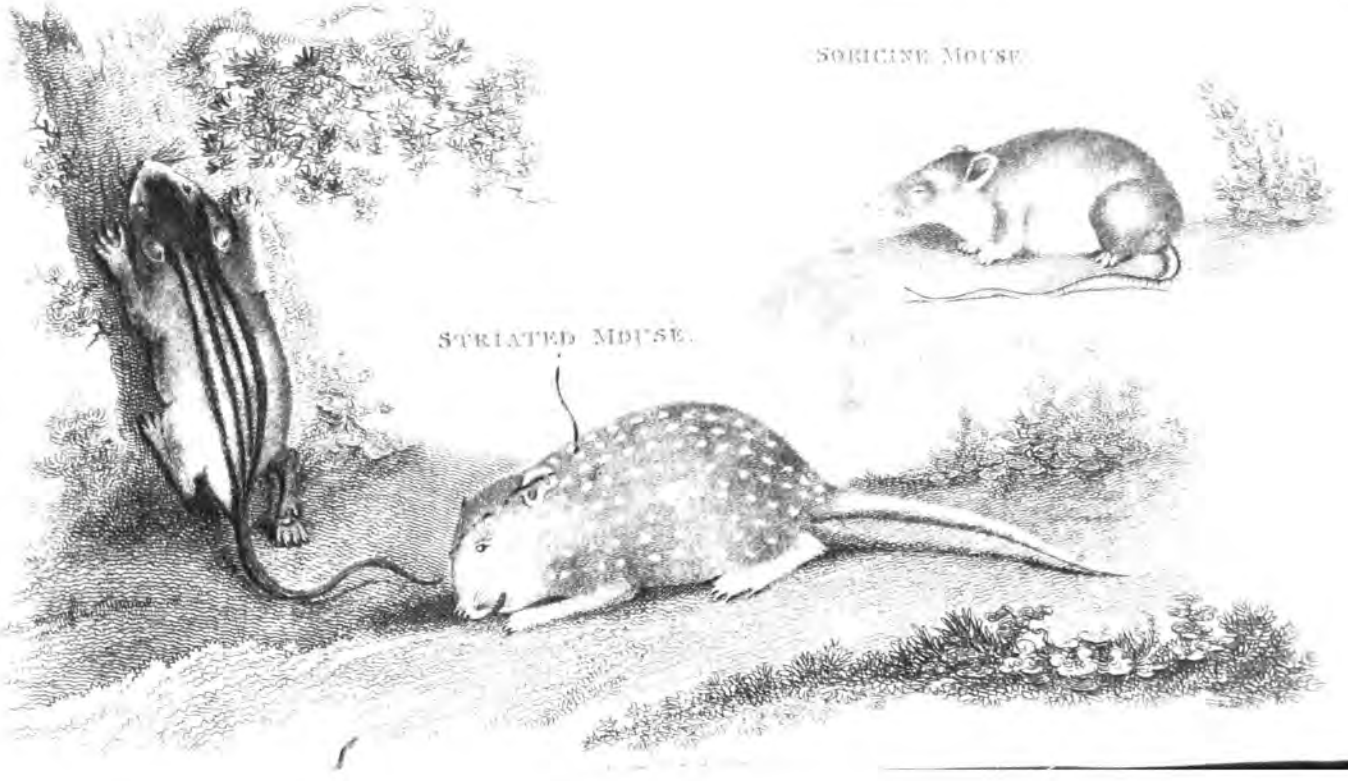
Little Mouse. *Pennant Quadr. 2. p. 191.*

This species, according to Dr. Pallas, is frequent in the birch woods of Siberia, as well as in many of the temperate parts of Russia, frequenting corn-fields, and barns. Its general colour is a deep tawny above, and white below; the nose is sharpish and of a dusky colour, with a whiteness at the corners of the mouth: the ears are hid in the fur; the feet grey: the length from nose to tail is little more than two inches, and the weight not half a dram. Those found in Siberia are of a richer or more fulvous colour than those of other regions. This animal, Dr. Pallas says, is very frequent in autumn and winter in corn-

LINEATED MOUSE.

SORICINE MOUSE.

STRIATED MOUSE.



ricks and about granaries, and is often found intermixed with the Mus agrarius, inhabiting similar places. It seems extremely nearly allied to the harvest mouse, and it is not impossible that it may in reality be the same animal; the differences appearing almost too slight for a specific distinction.

SORICINE MOUSE.

Mus Soricinus. *M. cauda mediocri subpilosa, rostro producto, auriculis orbiculatis vestitis, velleris dorso flavicante griseo, abdomine albido. Lin. Syst. Nat. Gmel. p.* 130.

Yellowish grey Mouse, with long snout, round furred ears, and hairy tail of moderate length.

This is an extremely small species, and has the general appearance of a Sorex or Shrew, having a long and slender or sharp-pointed snout. It is a native of Strasburg, where it was first discovered by Professor Herman: its colour is a pale yellowish or subferruginous brown, whitish beneath: the ears are short and rounded, and are covered with hair. It measures two inches from nose to tail, and the tail is nearly of similar length, or rather a trifle longer.

WANDERING MOUSE

Mus Vagus. *M. cauda longissima nudiuscula, corpore cinereo, fascia dorsali nigra, auribus plicatis. Lin. Syst. Nat. Gmel. p.* 130.

Cinereous Mouse, with black dorsal band, very long naked tail, and plaited ears.

This, which was discovered by Dr. Pallas, is frequent throughout the whole Tartarian desert, and is of a migrating nature. It is a small species, scarce exceeding the *Mus minutus* in size, and measuring little more than two inches and a half from nose to tail, and the tail three inches. It is of a pale ash-colour above, slightly mixed or undulated with black, and marked with a black dorsal line: the ends of the limbs are whitish. This species wanders about in great multitudes, migrating from place to place chiefly by night. It is of a very tender or delicate nature, and even during the nights of June is often found rolled up, as if falling into a state of torpidity. It is said to inhabit chiefly the fissures of rocks, the cavities under large stones, or hollow trees.

DASYPODIDÆ VIOSCA.

DASYPUS OCTOCINCTUS. (Mexican Armadillo.)

MUS TOLTA. (Tolta Mouse.)

BIRCH MOUSE.

Mus Betulinus. *M. cauda longissima nudiuscula, corpore fulvo, fascia dorsali nigra, auriculis plicatis. Lin. Syst. Nat. Gmel. p. 131.*

Fulvous Mouse, with black dorsal band, plaited ears, and very long naked tail.

THIS is so nearly allied to the *Mus vagus* that it might almost pass for the same species, or at least for a variety, but is still smaller than that animal, and scarcely exceeds two inches and a quarter in length; the tail being at least three inches, or longer in proportion than in the former. It inhabits the birch woods of Siberia, living in the hollows of decayed trees. Like the former, it is of a tender nature, and soon becomes torpid in cold weather. In ascending the branches of trees it is observed to coil round the twigs with its tail, in the manner of an opossum. Dr. Pallas has often observed it ascending the stems of some of the stronger grasses, which were scarcely bent with its weight. He also kept several of them a considerable time, which grew very tame, and delighted in being held in the hand. This species is of a rufous ash-colour above, and of a pale ash colour beneath, and along the back is a dusky line: the nose is pointed, and red at the tip: the ears small, brown, and bristled at the ends, and the limbs weak and slender.

LINEATED MOUSE.

Mus Pumilio. *M. cauda mediocri nudiuscula, corpore ex fusco cinereo, fronte nigra et lineis quatuor dorsalibus nigris. Lin. Syst. Nat. Gmel. p. 131.*

Cinereous-brown Mouse, with black front, four black dorsal lines, and nearly naked tail of middling length.

THIS small and elegant species was first described by Sparman, and is a native of the forest regions on the Slangen river, a great way eastward from the Cape of Good Hope. It is one of the least of the genus, being little more than two inches long from nose to tail. Its colours and other particulars are sufficiently described in the specific character.

STRIATED MOUSE.

Mus Striatus. *M. cauda longiuscula subnuda, corporis striis plurimis parallelis albo-guttatis. Lin. Syst. Nat. Gmel. p. 131.*

Rufous-brown Mouse, with longish naked tail, and the body marked by several longitudinal rows of white spots.

Mus orientalis. *Seb. 2. p. 22. t. 21. f. 2.*

Mus cauda longa, striis corporis longitudinalibus ex punctis albis. Lin. Mus. Ad. Frid. 1. p. 10.

THIS beautiful little animal was first described and figured by Seba, from whom other authors have taken their descriptions. It is about half the size of a common mouse, and is of a rufous or fulvous colour, with several parallel rows of

roundish white spots, disposed longitudinally along the upper parts of the body: the ears are short and roundish; the nose blunt; the tail thick and whitish, and of the same length with the body, and nearly naked. This species is, according to Seba, a native of India. He assures us that he purchased it alive of a sailor, who had brought it from India, and had tamed it to such a degree, that every day it would come out of its cage to be fed, and would sit on its master's shoulders, and even feed occasionally from his lips. Seba adds, that it continued equally tame while it lived with him; but, as if lamenting the loss of its former master, died in a short time. After this description, so particularly detailed by Seba, it seems strange that some authors have appeared to doubt the real existence of the animal as a genuine species. Dr. Pallas, however, seems to suspect that either the same, or a similar species, inhabits the regions about Mount Caucasus; having heard some reports of such an animal; yet confesses his doubt as to the specimen described by Seba, on account of his having discovered in Seba's collection a specimen inscribed *Mus striatus Indicus*, which was nothing more than the young of the *striped Barbary Squirrel (Sciurus Getulus)*, with the tail still naked, or resembling that of a mouse.

BARBARY MOUSE.

Mus Barbarus. *M. cauda mediocri, corpore fusco striis decem pallidis, palmis tridactylis, plantis pentadactylis. Lin. Syst. Nat. tom. 1. p. 2. Addend.*

Brown Mouse, marked with ten pale streaks; with tail of middling length, tridactyle fore-feet, and pentadactyle hind-feet.

This appears, from the description of Linnæus, to be so nearly allied to the *M. striatus*, as scarce to be separated from it. It is, says Linnæus, smaller than a common mouse, and is brown above, pale or whitish beneath: on each side the back are ten pale stripes, and sometimes a scarce perceptible line occurs between the lateral stripes. The fore feet have three unguiculated toes, and an obscure appearance of a fifth toe: the tail is naked, obscurely annulated, and of the length of the body. The animal is a native of Barbary.

To the above division of long-tailed species must be referred two which are figured and slightly described by Seba. One of these is adopted by Mr. Pennant, in the last edition of his History of Quadrupeds, under the title of the *Virginian Mouse*. It is figured at pl. 47, fig. 4, of the first vol. of Seba, and is called *Mus agrestis Americanus albus*. Its size seems to be that of the *Wood Mouse*; its colour entirely white; the eyes very small; the head large; the snout short but pointed, and the tail very thick at the base, and gradually tapering at the point.

The other species is called by Seba, *Mus Mexicanus maculatus*, and appears by its figure, pl. 45, fig. 5, of that author, to be about the size of a common mouse, and of the same general proportions; and is of a white colour, with a broad ferruginous band in front, passing beyond the eyes on each side; and on each side the body is also a large oblong patch of a similar colour: the tail seems naked. This Mr. Pennant calls the *Mexican Mouse*.

There is still another white species figured by Seba, and termed *Glis seu Mus Avellanarum Americanus albus*. It appears to be about the size of a very small rat, and has the habit of a Sorex or Shrew, the snout being very long and sharp, with numerous strong vibrissæ; the tail very slightly haired. It is figured on pl. 31 of Seba.

With hairy Tails, in general either of middling length, or short.

BLUE RAT.

Mus Cyanus. *M. cauda mediocri subpilosa, palmis tetradactylis, plantis pentadactylis, corpore cærulco, subtus albido. Lin. Syst. Nat. Gmel. p.* 132. *Molina Chil. p.* 266.

Blue Rat, whitish beneath, with tetradactylous fore-feet, pentadactylous hind-feet, and slightly hairy tail of middling length.

Sky-coloured Rat. *Pennant Quadr. 2. p.* 183.

This is a species described by Molina in his History of Chili, of which country it is a native, and is about the size of the wood rat (*M. Sylvati-*

cus), and of a fine pale blue colour, with rounded ears. It inhabits subterraneous burrows, which it forms of the length of many feet, and on each side of which are several holes or receptacles in which it deposits its winter provisions, consisting chiefly of tuberous roots, &c. It is a timid animal, and is also said to be very cleanly. It breeds twice a year; producing six at a time. The peasants of Chili frequently rob the subterraneous retreats of this species of the hoards which they contain.

ROCK RAT.

Mus Saxatilis. *M. cauda longiuscula, auribus vellere majoribus, palmis subtetradactylis. Lin. Syst. Nat. Gmel. p.* 131.
Greyish-brown Rat, with longish tail, ears longer than the fur, and subtetradactylous fore-feet.
Rock Rat. *Pennant Quadr.* 2. *p.* 192.

The Mus Saxatilis or Rock Rat was first described by Dr. Pallas, and measures four inches, exclusive of the tail, which is an inch and half long. The head is oblong; the nose rather pointed; the ears rising above the fur; oval, downy, and brown at the edges; the whiskers short, and the limbs strong. The colour of the animal is brown above, slightly mixed with grey; the sides inclining still more to the latter colour; the belly light cinereous, and the snout dusky, surrounded by a white ring. It is a native of Siberia, and is principally found beyond Lake Bai-

kal, and the Mongolian desert. It makes its burrows in a wonderful manner, considering the weakness of its feet, between the fissures of rocks which have been forced open either by the violence of frost, or the insinuation of the roots of plants. It chuses its situation amidst the rudest rocks, forming a large oblique or winding passage through which it flings out the earth, and from this passage proceeds another hole (and sometimes there are two), pointing downwards, and winding among the rocks, and in the bottom is situated the nest, composed of soft herbs. The principal food of this species, according to Dr. Pallas, consists of the seeds of various species of *Astragalus* or Milk-Vetch.

WATER RAT.

Mus Amphibius. *M. cauda longitudine dimidia corporis, auribus vix vellere prominulis, pedibus subtetradactylis. Lin. Syst. Nat. Gmel. p.* 132. *Pall. glir. p.* 80.

Blackish-brown Rat, ash-coloured beneath, with ears scarce projecting from the fur, subtetradactyle fore-feet, and tail about half the length of the body.

Mus cauda elongata pilosa, plantis palmatis. Lin. Syst. Nat. p. 82.

Mus agrestis major. *Gesn. Quadr. p.* 733.

Le Rat d'eau. *Buff. 7. p.* 368. *pl.* 43.

Water Rat. *Pennant Quadr. 2. p.* 182.

The Water Rat is a general inhabitant of the temperate, and even the colder parts of Europe and Asia, and occurs also in North America; fre-

quenting rivers and stagnant waters, and forming its burrows in the banks. It is of a thicker and shorter form than many others of this genus, and has somewhat of the shape of a beaver. Mr. Ray, following an error of Willoughly, describes it as having the fore feet webbed; and Linnæus, in his Systema Naturæ, characterizes it from that very circumstance, but acknowledges that he had not himself examined the animal. In reality, however, there is no such appearance in the feet of the Water Rat, and the notion seems to have been hastily adopted from observing the facility with which it swims and dives. The general length of the Water Rat is about seven inches, and the tail about five. Its colour is blackish ferruginous above, and deep cinereous beneath: the nose is thick and blunt; the eyes small; the ears rounded and hid in the fur. In colour it appears to vary in different regions, being sometimes nearly black, and sometimes paler than usual. It also varies as to size, and the varieties have been mistakenly considered as distinct species. This animal never frequents houses, but confines itself to the banks of waters, and is supposed to live on fish, frogs, &c. and probably on various roots and other vegetable substances. Dr. Pallas, however, is unwilling to admit that it preys at all upon fish, though reported so to do by the Count de Buffon and others. At some seasons of the year it is observed to have a musky scent. The female produces her young in April, and generally brings about five or six at a time.

The measures of this species, as given by Mr. Schreber, are as follow, viz. from nose to tail six inches and a half; and of the tail three inches. The figure engraved in Count de Buffon's Natural History is excellent, and is copied in the present publication.

SCHERMAN RAT.

Mus Scherman. *M. cauda mediocri subpilosa, corpore supra fusco, subtus cinereo, pedibus parvis, auriculis vellere brevioribus.*
Deep-brown Rat, cinereous beneath, with slightly hairy tail of moderate length, small feet, and ears shorter than the fur.
Scherman Rat. *Pennant Quadr.* 2. *p.* 182.

This species is said to be common about the neighbourhood of Strasburg, and appears to have been first described by Mr. Hermann, who in the year 1776 communicated a specimen to Count de Buffon. The length of the animal from nose to tail is six inches; of the tail about two inches and three quarters: the head is rather short; the snout thick; the eyes small, and the ears almost as short as those of a mole, and concealed beneath the fur. The general colour of the fur is a blackish brown, mixed with grey tawny; the hair being blackish at the root, and tawny towards the tip: the edges of the mouth are bordered with short white hairs, and the whiskers are black: the under parts of the body are of a mouse grey; the legs, which are short, are covered with dusky hair, as are also the feet, which are very small: the tail is

hairy, but not so well covered as that of the water rat. This animal resides in watery places and about gardens at Strasburgh, and is said to be very destructive to the plants in cultivated grounds. It swims and dives extremely well, and also burrows occasionally under ground.

LEMMING RAT.

Mus Lemmus. *M. brachyurus, auriculis vellere brevioribus, palmis pentadactylis, corpore fulvo nigro alboque vario, subtus albo. Lin. Syst. Nat. Gmel. p.* 136.

Short-tailed Rat, with ears shorter than the fur, pentadactylous fore-feet, and body white beneath, variegated above with black, white, and fulvous.

Mus cauda abbreviata, pedibus pentadactylis, corpore fulvo nigro-vario. Lin. Syst. Nat. p. 80.

Lemmus. *Gesn. Quadr. p.* 731.

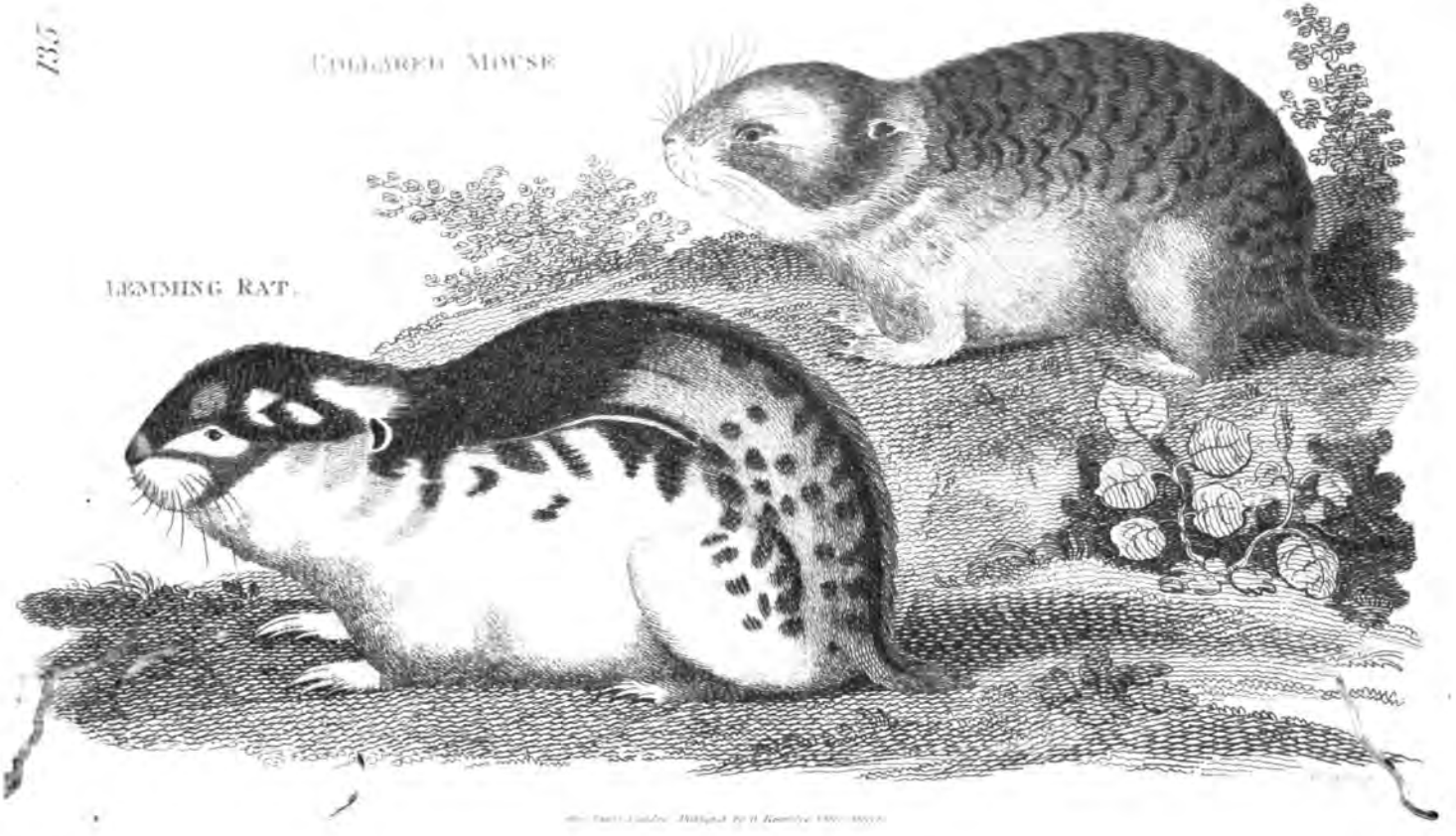
Bestiola Leem dicta. *Aldr. dig. p.* 436. *Jonst. p.* 168.

Leming. *Buff.* 13. *p.* 314.

Lemmus. *Pennant Quadr.* 2. *p.* 198.

The wonderful migrations of this species have long rendered it celebrated in the annals of natural history: it is remarkable, however, that no accurate figure of it was published till Dr. Pallas caused it to be engraved in his excellent work on the Glires.

The first describer of the Lemming seems to have been Olaus Magnus, from whom several of the older naturalists have copied their accounts. Afterwards Wormius gave a more particular description; since which, Ricaut, in the Philosophical


LEMMING RAT.

Transactions, Linnæus, in the Acta Holmiensia, and Dr. Pallas, in his publication before mentioned, have still farther elucidated its history and manners.

The Lemming differs in size and colour according to the regions it inhabits: those which are found in Norway being almost as large as a water rat, while those of Lapland and Siberia are scarce larger than a field mouse; the Norvegian measuring more than five inches from nose to tail, while those of Lapland and Siberia scarce exceed three. The colour of the Norway kind is an elegant variegation of black and tawny on the upper parts, disposed in patches and clouded markings: the sides of the head and the under parts of the body being white; the legs and tail greyish. In the Lapland kind the colour is chiefly a tawny brown above, with some indistinct dusky variegations; and beneath of a dull white: the claws are also smaller than in the Norvegian animal. The head of the Lemming is large, short, thick, and well furred; the snout very obtuse; the ears very small, rounded, and hid in the fur; the eyes small; the neck short and broad; the body thick; and the limbs short and stout, especially the fore legs: the fore-feet are broad, furnished with five toes, which have strong, compressed, and somewhat crooked claws, of which the three middle ones are longer than the rest: on the hind-feet are also five toes, with smaller claws than those of the fore-feet: the tail is very short, thick, cylin-

dric, obtuse, and covered with strong hairs, disposed like those of a pencil at the tip.

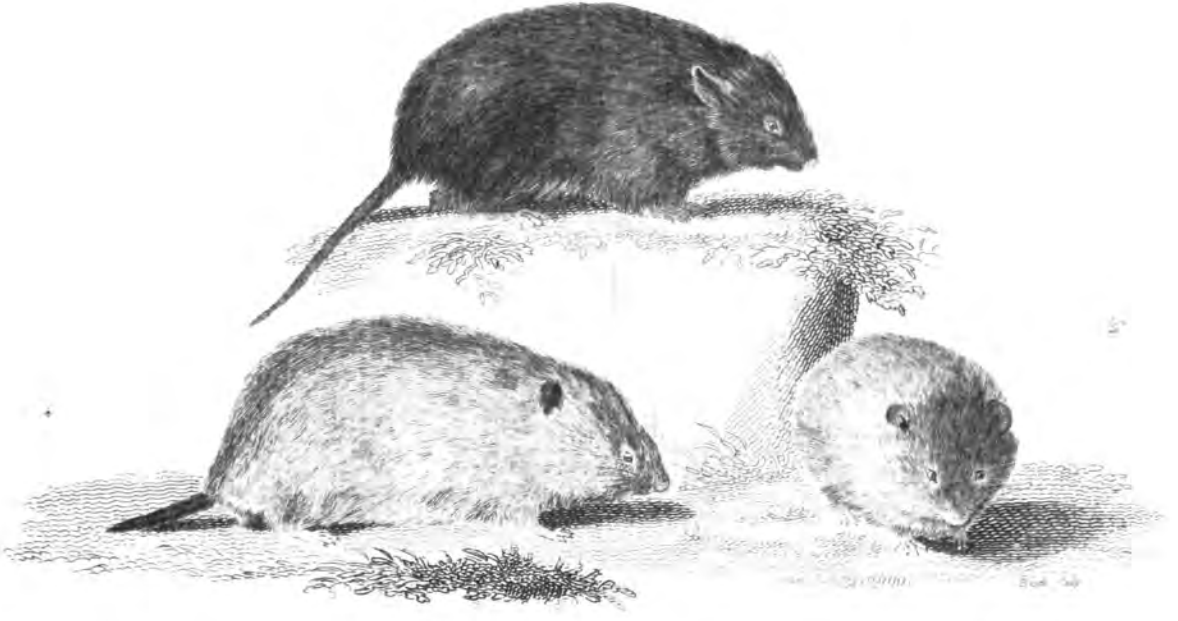
The natural or general residence of the Lemming is in the Alpine or mountainous parts of Lapland and Norway, from which tracts, at particular but uncertain periods, it descends into the plains below, in immense troops, and by its incredible numbers becomes a temporary scourge to the country; devouring the grain and herbage, and committing devastations equal to those caused by an army of locusts. These migrations of the Lemming seldom happen oftener than once in ten years, and in some districts still less frequently, and are supposed to arise from an unusual multiplication of the animals in the mountainous parts they inhabit, together with a defect of food; and, perhaps, a kind of instinctive prescience of unfavourable seasons; and it is observable that their chief migrations are made in the autumn of such years as are followed by a very severe winter. The inclination, or instinctive faculty which induces them, with one consent, to assemble from a whole region, collect themselves into an army, and descend from the mountains into the neighbouring plains, in the form of a firm phalanx, moving on in a strait line, resolutely surmounting every obstacle, and undismayed by every danger, cannot be contemplated without astonishment. All who have written on the subject agree that they proceed in a direct course, so that the ground along which they have passed appears at a distance as

if it had been ploughed; the grass being devoured to the very roots, in numerous stripes, or parallel paths, of one or two spans broad, and at the distance of some ells from each other. This army of mice moves chiefly by night, or early in the morning, devouring the herbage as it passes, in such a manner that the surface appears as if burnt. No obstacles which they happen to meet in their way have any effect in altering their route; neither fires, nor deep ravines, nor torrents, nor marshes, or lakes: they proceed obstinately in a strait line; and hence it happens that many thousands perish in the waters, and are found dead by the shores. If a rick of hay or corn occurs in their passage, they eat through it; but if rocks intervene, which they cannot pass, they go round, and then resume their former strait direction. If disturbed or pursued while swimming over a lake, and their phalanx separated by oars or poles, they will not recede, but keep swimming directly on, and soon get into regular order again; and have even been sometimes known to endeavour to board or pass over a vessel. On their passage over land, if attacked by men, they will raise themselves up, uttering a kind of barking sound, and fly at the legs of their invaders, and will fasten so fiercely at the end of a stick, as to suffer themselves to be swung about before they will quit their hold; and are with great difficulty put to flight. It is said that an intestine war sometimes takes place in these armies during their migrations, and that the animals thus destroy each other.

The major part, however, of these hosts is destroyed by various enemies, and particularly by owls, hawks, and weesels, exclusive of the numbers which perish in the waters; so that but a small number survive to return, which they are sometimes observed to do, to their native mountains.

In their general manner of life they are not observed to be of a social disposition, but to reside in a kind of scattered manner, in holes beneath the surface, without laying up any regular provision, like some other animals of this tribe. They are supposed to breed several times in a year, and to produce five or six at once. It has been observed that the females have sometimes brought forth during their migrations, and have been seen carrying some in their mouths, and others on their backs. In some parts of Lapland they are eaten, and are said to resemble squirrels in taste.

It was once believed that these animals fell from the clouds at particular seasons, and some have affirmed that they have seen a Lemming in its descent; but an accident of this kind is easily accounted for, on the supposition of a Lemming escaping now and then from the claws of some bird which had seized it, and thus falling to the ground; a circumstance which is said not unfrequently to take place when the animals are seized by crows, gulls, &c.



MEADOW MOUSE.

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MEADOW MOUSE.

Mus Arvalis. *M. cauda unciali, auriculis vellere prominulis, palmis subtetradactylis, corpore fusco. Lin. Syst. Nat. Gmel. p.* 134. *Pall. Glir. p.* 74. *No.* 19.

Dusky-ferruginous short-tailed Rat, deep ash-coloured beneath, with ears longer than the fur, and subtetradactylous fore-feet.

Mus gregarius. *Lin. Syst. Nat. ed.* 12. *p.* 85.

Short-tailed Field Mouse. *Brit. Zool. No.* 31.

Meadow Mouse. *Pennant Quadr.* 2. *p.* 205.

Le Campagnol. *Buff.* 7. *p.* 369. *pl.* 47.

THIS species, which is very common in our own island, is readily distinguished from the rest of the British species by the shortness of its tail; measuring, according to Mr. Pennant, six inches from nose to tail; the tail being only an inch and half long. The colour of the animal is dusky ferruginous above, and deep ash-coloured beneath. It is a general inhabitant of Europe, and even extends to Siberia. It is also found in equal plenty in many parts of North America. In its manners it resembles the *Mus sylvaticus* or long-tailed Field Mouse; but is more commonly found in moist rather than dry situations. It makes its nest in meadows, and produces a litter of about eight at a time. Its favourite food is corn, which it amasses during harvest-time. It is frequently found in corn-ricks and barns, and often in company with the harvest mouse (M. minutus?) as well as with the long-tailed field mouse (M. sylvaticus). I know not how to reconcile the difference between the measures attributed to this

species by the Count de Buffon and Mr. Pennant; the former fixing its length at three inches, and the latter at six. It probably varies much in different climates, and accordingly the Count de Buffon tells us, that he had seen some which measured four inches and three lines from nose to tail. He also records a specimen, taken in the park of Versailles, which was entirely of a blackish ash-colour, and which had a tail of greater length than usual. Perhaps this dark-coloured variety may be the same with the *Mus (agrestis) cauda abbreviata, corpore nigro-fusco, abdomine cinerascente*, described by Linnæus, in the 2d edition of his *Fauna Suecica*.

Mr. Pennant has recorded a remarkable instance of attachment in the Meadow Mouse to its young. One which had been seduced into an iron trap by placing its brood in it, was so intent on fostering them as to appear quite insensible to its own state of captivity.

COLLARED MOUSE.

Mus Torquatus. *M. brachyurus, auribus vellere brevioribus, palmis pentadactylis, corpore ferrugineo vario, torque interrupta alboda, linea spinali nigra. Lin. Syst. Nat. Gmel. p. 136. Pall. Glir. p. 206.*

Short-tailed ferruginous Mouse, with dusky variegations, ears shorter than the fur, pentadactyle fore-feet, interrupted white collar, and black spinal stripe.

Ringed Mouse. *Pennant Quadr. 2. p. 201.*

In shape and general appearance this species is much allied to the Lemming, but differs in the disposition of its colours, as well as in size; being smaller than the Siberian and Lapland varieties of that animal. It is a native of those parts of Siberia which border on the river Oby, where it is more common than the Lemming, and makes occasional migrations, which are said to happen in the same year with those of the Lemming. The size of this species is that of a large meadow mouse: its colour on the upper parts is an elegant ferruginous, variegated with numerous small dusky undulations; and round the neck is a white collar, while the forehead and top of the head are dusky, which colour curves down beyond the cheeks on each side, so as to form a dusky collar next to the white one: the cheeks are white, as is also the belly: the breast and sides are tinged with light orange-colour: the tail is extremely short, and is brown, tipped with white hairs. This species is said to feed chiefly on the reindeer lichen (Lichen rangiferinus) and the vivipa-

rous Bistort (Polygonum viviparum), the roots of which are often found in its holes or burrows, which are formed with several passages which it digs under the turfy soil.

HARE-TAILED MOUSE.

Mus Lagurus. *M. brachyurus, auriculis vellere brevoribus, palmis subtetradactylis corpore cinereo, linea longitudinali nigra. Lin. Syst. Nat. Gmel. p.* 135. *Pall. Glir. p.* 218.

Short-tailed cinereous Mouse, white beneath, with ears shorter than the fur, subtetradactylous fore-feet, and black dorsal line.

Hare-tailed Rat. *Pennant Quadr.* 2. *p.* 202.

This species, which is also of the migratory kind, is considerably smaller than the Lemming, but of nearly similar shape, and of a fine pale brown above, with blackish hairs intermixed, and has a black dorsal line or stripe running from the nose to the tail, which is extremely short and villose, so as to resemble the scut of a hare in miniature: the throat, belly, and feet, are white. This little animal delights in dry, sandy plains of the harder kind, where it can form its burrows: it feeds chiefly on the roots of the dwarf Iris (Iris pumila), as well as on grain and several other plants and seeds, even such as are bitter, as the Pontic and sea Wormwood. It is an animal of a fierce disposition, and makes a considerable resistance when taken. The length of this species is between three and four inches. It inhabits Siberia, and particularly the parts above the Yaik,

Irtish, and Jenesei. It is an animal that sleeps much; rolling itself up like the marmot, and sometimes migrates, in great troops, from one part of the country to another.

ŒCONOMIC RAT.

Mus Œconomus. *M. cauda subsesquiunciali, auriculis nudis in vellere molli latentibus, palmis subtetradactylis, corpore fusco. Lin. Syst. Nat. Gmel. p.* 134. *Pall. Glir. p.* 79. *No.* 15.
Short-tailed tawny Rat, whitish beneath, with naked ears concealed by the fur, and subtetradactyle fore-feet.
Œconomic Rat. *Pennant Quadr.* 2. *p.* 194.

The Œconomic Rat, so named from its provident disposition and the skill with which it collects its provisions, is a native of Siberia, inhabiting that country in vast abundance, and even extending as far as Kamtschatka. Its curious history has been given with great exactness by Dr. Pallas, who informs us that these little animals make their burrows with wonderful skill immediately below the surface in soft turfy soils, forming a chamber, of a flattish arched form, of a small height, and about a foot in diameter, to which they sometimes add as many as thirty small pipes or entrances, and near the chamber they frequently form other caverns, in which they deposit their winter stores; these are said to consist of various kinds of plants, even of some species which are poisonous to mankind. They gather them in summer, harvest them with great care, and even

sometimes bring them out of their cells in order to give them a more thorough drying in the sun. The chief labour rests on the females; the males during the summer wandering about in a solitary state, inhabiting some old nests occasionally, and living during that period on berries, without touching the hoards, which are reserved for winter, when the male and female reside together in the same nest. They are said to breed several times in the year, the female producing two or three young at a time.

The migrations of this little species are not less extraordinary than those of the Lemming, and take place at uncertain periods. Dr. Pallas imagines that the migrations of those inhabiting Kamtschatka may arise from some sensations of internal fire in that volcanic country, or from a prescience of some unusual and bad season. Whatever be the cause, the fact is certain: at such periods they gather together, during the spring season, in surprising numbers, except the few that reside about villages, where they can pick up some subsistence; and this makes it probable that their migrations, like those of the Lemming, are rather owing to want of food. The mighty host proceeds in a direct course westward, occasionally swimming with the utmost intrepidity over rivers, lakes, and even arms of the sea. During these perilous adventures, some are drowned, and others destroyed by water-fowl, fish, &c.: those which escape rest a while to bask, dry their fur, and refresh themselves, and then again set out on their

migration. It is said that the inhabitants of Kamtschatka, when they happen to find them in this fatigued situation, treat them with the utmost tenderness, and endeavour by every possible method to refresh and restore them to life and vigour. Indeed none of the smaller animals are so much esteemed by the Kamtschadales as these; since to their labours they owe many a delicious repast; robbing their hoards in autumn, and leaving there some kind of provision in return, accompanied by some ridiculous presents by way of amends for the theft. As soon as the migrating host of these animals has crossed the river Penschim, at the head of the gulph of that name, it turns southward, and reaches the rivers Judoma and Ochot about the middle of July: the space thus traversed appears astonishing, on consulting the map of the country. The flocks, during this time, are so numerous that an observer has waited two hours to see them all pass. Their return into Kamtschatka is in October, and is attended with the utmost festivity and welcome on the part of the natives, who consider their arrival as a sure prognostic of a successful chase and fishery; and they are said equally to lament their migrations, which are usually succeeded by rainy and tempestuous weather.

This curious species is generally of a tawny colour, darker on the back, and lighter or more approaching to an ash-coloured whiteness beneath: its usual length is about four inches and a quarter, and the tail one inch: its limbs are strong; its

eyes small, its ears naked, very short and round, and almost hid beneath the fur of the head.

This animal is also supposed to be an inhabitant of Iceland; at least a species which must be greatly allied to it is found in that country, and is said to be particularly plentiful in the wood of Husafels. In that country, where berries are but thinly dispersed, the little animals are obliged to cross rivers to make their distant foraging excursions; and in their return are obliged to repass the stream; their manner of performing which is thus related by Mr. Olaffen, from the accounts of others, communicated to himself:

"The party, consisting of from six to ten, select a flat piece of dried cow-dung, on which they place the berries they have collected, in a heap, on the middle; and then, by their united force, drawing it to the water's edge, launch it, and embark, placing themselves round the heap, with their heads joined over it, and their backs to the water, their tails pendent in the stream, and serving the purpose of rudders."

Var. ?

Mus Glareolus. *Schreber, p.* 679. *pl.* 190. B.

This, from Mr. Schreber's figure, appears to be about the size of a common mouse, and of an uniform pale ferruginous colour, whitish beneath: the head seems very large, and without any visible distinction of neck; the body tapering from

the shoulders: the limbs small and slender, and the tail about an inch long: the eyes very small; the ears entirely hid in the fur, and the nose rather inclining to a sharp form. It was observed by Mr. O. F. Müller, in the year 1777, in the island of Laland, among some sea lyme-grass (Elymus arenarius), growing on the sand near the shore. Nothing particular is known of its manners, and it remains doubtful whether it be a distinct species or a variety of the œconomic mouse.

GARLIC MOUSE.

Mus Alliarius. *M. cauda unciali, auribus majusculis subpilosis, corpore cinereo subtus albido. Lin. Syst. Nat. Gmel. p. 133. Pall. Glir. p. 252.*

Cinereous Mouse, whitish beneath, with rather large slightly hairy ears, and tail about an inch in length.

Garlic Mouse. *Pennant Quadr. 2. p. 197.*

The Garlic Mouse was first described by Dr. Pallas, who informs us that it is a native of Siberia, where it is chiefly found about the Jenesei and Lena, and is frequent in the subterraneous magazines of bulbous roots, especially the *Allium angulâtum*, or angular garlic, formed by the Siberian peasants. It is very nearly allied to the meadow mouse, but the ears are larger, and the body is of a cinereous colour above, and whitish beneath; it measures somewhat more than four inches from nose to tail, and the tail about an

inch and half; the tail is also marked along the top with a dusky line, the remainder being white.

RED MOUSE.

Mus Rutilus. *M. cauda unciali, auriculis vellere longioribus, palmis subtetradactylis, corpore supra fulvo subtus cano. Lin. Syst. Nat. Gmel. p.* 133. *Pall. Glir. p.* 246.

Fulvous Mouse, ash-coloured beneath, with tail about an inch long, ears longer than the fur, and subtetradactyle fore-feet.

Red Mouse. *Pennant Quadr.* 2. *p.* 196.

The length of this species is not quite four inches, and the tail is somewhat more than one inch long, and very hairy: the nose and face are bristly, the ears very small, but longer than the fur; bare, but edged at the tips with reddish hairs. The colour of the animal on the upper parts is a pleasant tawny red; the sides tinged with light yellowish-grey, and the under parts are whitish. It is a native of Siberia, and is found from the Oby eastward to Kamtschatka, in woods and mountains; and also within the arctic circle. It sometimes frequents houses and granaries; and is often found under logs of wood, trunks of trees, &c. It is said to wander about during the whole winter; seemingly unaffected by the severity of the season. A variety somewhat smaller has been found about Casan, having a longer and thinner tail. It is also said to have been discovered in the neighbourhood of Gottingen.

WOOLLY MOUSE.

Mus Laniger. *M. cauda mediocri, palmis tetradactylis, plantis pentadactylis, corpore cinereo lanato. Lin. Syst. Nat. Gmel. p. 134. Molin. Hist. Chil. p. 267.*

Ash-coloured Woolly Mouse, with tetradactyle fore-feet, pentadactyle hind-feet, and tail of middling length.

Woolly Rat. *Pennant Quadr. 2. p. 196.*

The Woolly Mouse is a South American species, and is a native of Chili, where it resides in subterraneous retreats, in a gregarious manner, and feeds on various kinds of roots. It breeds twice a year, bringing five or six at a time. It is said to be an animal of a very mild and gentle disposition, very easily tamed, and often rendered domestic. The ancient Peruvians are said to have manufactured various valuable articles from its fur, which is of a woolly nature, long, and of exquisite fineness. This species is of a cinereous colour, and measures about six inches: the ears are very small; the nose short, and the tail of middling length.

BAIKAL MOUSE.

Mus gregalis. *M. cauda sesquiunciali, auriculis vellere longioribus, palmis subtetradactylis, corpore cinerascente. Lin. Syst. Nat. Gmel. p. 133. Pall. Glir. p. 238.*

Grey Mouse, with ears shorter than the fur, subtetradactyle fore-feet, and tail about an inch and half long.

Baikal Rat. *Pennant Quadr. 2. p. 204.*

THIS species is a native of Siberia, and forms its nest beneath turfy ground, with several minute entrances. It is supposed to feed chiefly on the roots of the *Lilium pomponium*, and *Allium tenuissimum*, which it collects for its winter provision. The male and female, together with the young of one year's age, reside in the same retreat. This species is not observed to migrate. It varies in size, and the males are in general much smaller than the females. The usual length seems to be about four inches, and the tail about an inch and half; but some of the males do not exceed three inches from nose to tail.

SOCIAL MOUSE.

Mus Socialis. *M. cauda semiunciali, auriculis orbiculatis brevissimis, palmis subtetradactylis, corpore pallido subtus albo. Lin. Sys. Nat. Gmel. p. 135. Pall. Glir. p. 705.*

Pale-grey Mouse, white beneath, with very short rounded ears, subtetradactyle fore-feet, and tail of half an inch in length.

Social Rat. *Pennant Quadr. 2. p. 203.*

The Social Mouse is a native of the Caspian deserts between the Volga and the Yaik, and the country of Hircania. It lives in low sandy situations, in large societies; the ground in many places being covered with the little hillocs formed by the earth cast out in forming the burrows, which are said to be about a span deep, with eight or more passages. The animals are always observed to live in pairs, or with a family; they are fond of tulip-roots, which form a principal article of their food. They appear chiefly in the spring, when they are very numerous, but are rarely seen in autumn, and are supposed either to migrate in autumn or to conceal themselves among the bushes, &c. and in the winter to shelter themselves in hay-ricks. The head in this species is thick, and the nose blunt; the whiskers white; the ears oval and naked; the limbs short and strong, and the tail slender. The upper parts are of a light grey, and the under, white.

HUDSON'S BAY MOUSE.

Mus Hudsonius. *M. brachyurus, auriculis nullis, plantis pentadactylis, vitta dorsali ex luteo fuscescente, pectore et abdomine albis. Lin. Syst. Nat. Gmel. p. 137. Pall. Glir. p. 209.*
Short-tailed earless ash-coloured Mouse, white beneath, with yellowish brown dorsal stripe, and pentadactyle hind-feet.
Hudson's Rat. *Pennant Quadr. 2. p. 201.*

THE length of this species is about five inches, and the colour a pale cinereous, tinged with tawny, and marked with a brownish dorsal stripe: the fur is long and very soft; the limbs short and strong; the tail very short, and terminated by bristly hairs: the female is smaller than the male, which is also distinguished by the superior size and strength of the two middle claws of the fore-feet, which are not only very thick and stout, but are bifid at their extremities. This species is described by Dr. Pallas from some skins which were received from Labrador. Its particular history and manners seem to be unknown.

HAMSTER RAT.

With Cheek-pouches for the temporary Reception of their Food.

HAMSTER RAT.

Mus Cricetus. *M. buccis sacculiferis, corpore subtus aterrimo, auriculis lumbaribus detonsis. Lin. Syst. Nat. Gmel. p.* 137. *Pall. Glir. p.* 83.

Reddish-brown pouched Rat, with three white spots on each side, and deep black abdomen.

Mus cauda mediocri, auriculis rotundatis, corpore subtus nigro, lateribus rufescentibus, maculis tribus albis. Lin. Syst. Nat. p. 82.

Hamster. *Buff.* 13. *p.* 117. *pl.* 14. *and Suppl.* 3. *p.* 183.

Hamster Rat. *Pennant Quadr.* 2. *p.* 206.

Of the pouched rats the Hamster is the most remarkable, and indeed is the only European species provided with those peculiar receptacles, which are situated on each side the mouth, and when empty are so far contracted as not to appear externally, but when filled resemble a pair of tumid bladders, having a smooth veiny surface; concealed, however, under the fur or skin of the cheeks *, which bulge out extremely in this state. They are so large as to hold the quantity of a quarter of a pint, English measure.

The general size of the Hamster is nearly that of a brown or Norway rat, but it is of a much

* In the figure of these parts engraved in Buffon's Natural History, Vol. XIII. pl. 16, they are represented as situated under the skin of the cheeks, which has been divided in order to display them; and in Daubenton's accurate description they are expressly said to be covered by the common integuments.

thicker form, and has a short tail. Its colour is a pale reddish brown above, and black beneath. The muzzle is whitish, the cheeks reddish, and on each side the body are three moderately large oval white spots, of which those on the shoulders are the largest: the ears are moderately large and rounded, and the tail almost bare, and about three inches long: on the fore-feet are four toes, with a claw in place of a fifth; and on the hind-feet are five toes. Sometimes the Hamster varies in colour, being found either black with a white muzzle, or of a pale yellowish white. The male is always much larger than the female. On each side the lower part of the back is an almost bare spot, covered only with very short down.

The Hamster inhabits Siberia and the south of Russia. It is also found in Poland, as well as in many parts of Germany. They are very destructive in some districts, devouring great quantities of grain, which they carry off in their cheek-pouches, and deposit in their holes in order to devour during the autumn. The habitations which they dig, to the depth of three or four feet, consist of more or fewer apartments, according to the age of the animal: a young Hamster makes them hardly a foot deep; an old one sinks them to the depth of four or five feet, and the whole diameter of the residence, taking in all its habitations, is sometimes eight or ten feet. The principal chamber is lined with dried grass, and serves for a lodging; the others are destined for the preservation of provisions, of which he amasses

a great quantity during the autumn. Each hole has two apertures, the one descending obliquely, and the other in a perpendicular direction, and it is through this latter that the animal goes in and out. The holes of the females, who never reside with the males, are somewhat different in their arrangement, and have more numerous passages. The female breeds two or three times a year, producing five or six, and sometimes as many as sixteen or eighteen *. The growth of the young is rapid, and they are soon able to provide for themselves.

The Hamster feeds on all kinds of herbs and roots, as well as on grain, and even occasionally on the smaller animals. "In harvest time (says Mr. Allamand) he makes his excursions for provision, and carries every article he can find into his granary. To facilitate the transportation of his food, Nature has provided him with two pouches in the inside of each cheek. On the outside these pouches are membranous, smooth, and shining, and in the inside are a great many glands, which continually secrete a certain fluid, to preserve their flexibility, and to enable them to resist any accidents which may be occasioned by the roughness or sharpness of particular grains."

On the approach of winter the Hamster retires into his subterraneous abode, the entry of which he shuts up with great care; and thus remaining

* Allamand's Buffon.

in a state of tranquillity, feeds on his collected provision till the frost becomes severe; at which period he falls into a profound slumber, which soon grows into a confirmed torpidity, so that the animal continues rolled up, with all its limbs inflexible, its body perfectly cold, and without the least appearance of life. In this state it may even be opened; when the heart is seen alternately contracting and dilating, but with a motion so slow as to be scarce perceptible, not exceeding fifteen pulsations in a minute, though in the waking state of the animal it beats a hundred and fifty pulsations in the same time. It is added, that the fat of the creature has the appearance of being coagulated, that its intestines do not exhibit the smallest symptoms of irritability on the application of the strongest stimulants, and the electric shock may be passed through it without effect. This lethargy of the Hamster has been generally ascribed to the effect of cold alone; but late observations have proved, that unless at a certain depth beneath the surface, so as to be beyond the access of the external air, the animal does not fall into its state of torpidity, and that the severest cold on the surface does not affect it. On the contrary, when dug up out of its burrow, and exposed to the air, it infallibly awakes in a few hours. The waking of the Hamster is a gradual operation: he first loses the rigidity of his limbs, then makes profound inspirations, at long intervals; after this he begins to move his limbs, opens his mouth, and utters a sort of un-

pleasant rattling sound. After continuing these operations for some time, he at length opens his eyes, and endeavours to rise, but reels about for some time, as if in a state of intoxication, till at length, after resting a small space, he perfectly recovers his usual powers. This transition from torpidity to activity requires more or less time, according to the temperature of the air, and other circumstances. When exposed to a cold air he is sometimes two hours in waking; but in a warmer air the change is effected in half the time.

The manners of the Hamster are generally represented as far from pleasing. No society appears to exist among these animals. They are naturally very fierce, and make a desperate defence when attacked; they also pursue and destroy every animal which they are capable of conquering, not excepting even the weaker individuals of their own species. They are said to be particularly fond of the seeds of liquorice, and to abound in the districts where that plant is cultivated. According to Mr. Sultzer, they abound to such a degree in Gotha, that in one year 11,564, in another 54,429, and in a third 80,139 of their skins were delivered in the Hotel de Ville of that capital, where the Hamster is proscribed on account of the devastations it commits among the corn.

CANADA RAT.

Mus Bursarius. *M. cinereus, cauda tereti brevi submuda, genis saccatis, unguibus palmarum maximis fossoriis.*
Ash-coloured Rat, with short nearly naked tail, pouched cheeks, and the claws of the fore-feet very large, and formed for burrowing in the ground.
Mus Bursarius. *Lin. Trans. vol. 5. p. 227. pl. 8.*

This, which is a species but lately discovered, seems to be the most remarkable of all the pouched rats for the proportional size of the receptacles. It is a native of Canada, and the individual here figured was taken by some Indians in the year 1798, and afterwards presented to the lady of Governor Prescot. It is about the size of a brown or Norway rat, and is of a pale greyish-brown colour, rather lighter beneath: the length to the tail is about nine inches, and that of the tail, which is but slightly covered with hair, about two inches: the legs are short; the fore-feet strong, and well adapted for burrowing in the ground, having five claws, of which the three middle ones are very large and long; the interior much smaller, and the exterior very small, with a large tubercle or elbow beneath it. The claws on the hind-feet are comparatively very small, but the two middle are larger than the rest, and the interior one is scarce visible: the teeth are extremely strong, particularly the lower pair, which are much longer than the upper: the ears are very small. This species is described in the 5th

CANADA RAT.

volume of the Transactions of the Linnæan Society, but I must observe, that, by some oversight in the conduct of the figure there given, the claws on the fore-feet are represented as only three in number, and are somewhat too long, weak, and curved. The engraving in the present plate is a more faithful representation, and is accompanied by an outline of the head, in its natural size, as viewed in front, in order to shew the teeth and cheek-pouches. The manners of this species are at present unknown; but it may be concluded that it lays in a stock of provisions, either for autumnal or winter food. The pouches of the individual specimen above described, when first brought to Governor Prescot, were filled with a kind of earthy substance: it is, therefore, not improbable that the Indians who caught the animal might have stuffed them thus, in order to preserve them in their utmost extent.

YAIK RAT.

Mus Accedula. *M. buccis sacculiferis, auriculis sinuatis, corpore griseo subtus albido. Lin. Syst. Nat. Gmel. p. 137. Pall. Glir. p. 257.*

Yellowish-grey Rat, whitish beneath, with pouched cheeks and sinuated ears.

Yaik Rat. *Pennant Quadr. 2. p. 210.*

This species is a native of Siberia, and particularly of the deserts about the Yaik. It is much smaller than the Hamster, measuring only four

inches; and the tail about three quarters of an inch: the upper parts of the body are of a cinereous yellow mixed with brown, and the under parts whitish: the face also is whitish: the snout is blunt, the ears moderately large, the eyes full, and the body short and thick. On the fore-feet are four toes, and on the hind-feet five, all furnished with claws of moderate strength. This animal is said to make its excursions for food chiefly by night, confining itself during the greatest part of the day to its burrow.

SAND RAT.

Mus Arenarius. *M. buccis sacculiferis, corpore cinereo lateribus subtusque albo, cauda pedibusque albis. Lin. Syst. Nat. Gmel. p. 139. Pall. Glir. p. 265.*

Cinereous pouched Rat, with the feet, sides of the body, abdomen, and tail, white.

Sand Rat. *Pennant Quadr. 2. p. 211.*

THE Sand Rat is about four inches in length, with a tail about one inch or rather more: the head is longish and the snout sharp; the cheek-pouches large, the ears large and oval, and the eyes rather small: the colour of the upper part of the body is hoary or cinereous, and of the under pure white; the tail is also white. It is an inhabitant of the sandy plains of Baraba, near the Siberian river Irtish, where it forms deep burrows, at the bottom of which is a nest com-

posed of the sea lyme-grass and other plants. It is said to be chiefly a nocturnal animal, and of a fierce, untameable disposition.

ASTRACAN MOUSE.

Mus Phæus. *M. buccis sacculiferis, corpore caudaque fusco-cinerascentibus subtus albis. Lin. Syst. Nat. Gmel. p.* 138.
Ash-brown pouched Rat, white beneath.
Zarizyn Rat. *Pennant Quadr.* 2. *p.* 211.

THIS species measures about three inches and a half in length, exclusive of the tail, which is about three quarters of an inch long: the forehead is elevated; the edges of the eyelids black; the ears naked and oval; the colour of the animal on the upper parts is pale cinereous or hoary, with a dusky streak along the back: the sides are whitish; and the circumference of the mouth, under side of the body, and the extremities of the limbs, milk white. It is an inhabitant of the desert of Astracan, and particularly about Zarizyn, where it is occasionally taken in the winter season in places about stables and out-houses. Is is also found about the Persian villages in the Hyrcanian mountains, and seems to have been first distinctly described by Dr. Pallas.

SONGAR RAT.

Mus Songarus. *M. buccis sacculiferis, dorso cinereo, linea spinali nigra, lateribus albo fuscoque variis, ventre albo. Lin. Syst. Nat. Gmel. p.* 138. *Pall. Glir. p.* 261.

Cinereous pouched Rat, white beneath, with black spinal line and the sides patched with white.

Songar Rat. *Pennant Quadr.* 2. *p.* 212.

The Songar Rat is a native of Siberia, where, like others of this tribe, it forms its burrows in dry sandy places. Its length is about three inches, and its tail scarce more than a quarter of an inch. It is an animal of a thick shape, with a large head, blunt nose, small eyes, and large oval ears, which are but very slightly covered with hair. Its colour on the upper parts is pale grey, with a black dorsal line, and the sides marked with some large white spots or patches which are confluent in some parts, and in others bounded with brown: the under parts and legs are white. This elegant species appears to have been first discovered by Dr. Pallas, who observes, that it makes a nearer approach to the Hamster in its form, and in the disposition of its colours, than the rest of this tribe: Dr. Pallas, in one of the nests, which was formed of dried herbs, found seven young, which were still blind: these he preserved, and they soon grew perfectly tame, and would feed from his hand, lap milk, and, when placed on a table, shewed no desire to escape: they were kept in a box, with sand, in which they delighted to burrow. They frequently eat in a sitting posture,

MR. CLAVERING'S SQUIRREL.

SUNDAR RAT.

like a squirrel; and washed their faces with their paws: they generally wandered about during the day, and slept all night rolled up: their voice resembled that of a bat.

BARABA RAT.

Mus Furunculus. *M. buccis sacculiferis, corpore supra griseo, striga dorsali nigra, subtus albido. Lin. Syst. Nat. Gmel. p.* 139. *Pall. p.* 273.

Yellowish-grey pouched Rat, whitish beneath, with black dorsal streak.

Baraba Rat. *Pennant Quadr.* 2. *p.* 213.

This species, which inhabits the sandy plain of Baraba, towards the river Ob, is about the same length with the preceding, but the tail is much longer, measuring near an inch: the snout is of a sharper form, and the body more slender. It is of a yellowish grey colour above, and white beneath: along the back, from the neck almost to the tail, runs a black stripe. Nothing particular is known of its way of life, the specimens from which Dr. Pallas drew up his description, having been taken running about the plain, and their skins brought to him in a dried state.

Subterranean or Ground-Rats, resembling Moles in Habit and Manner of Life.

COAST RAT.

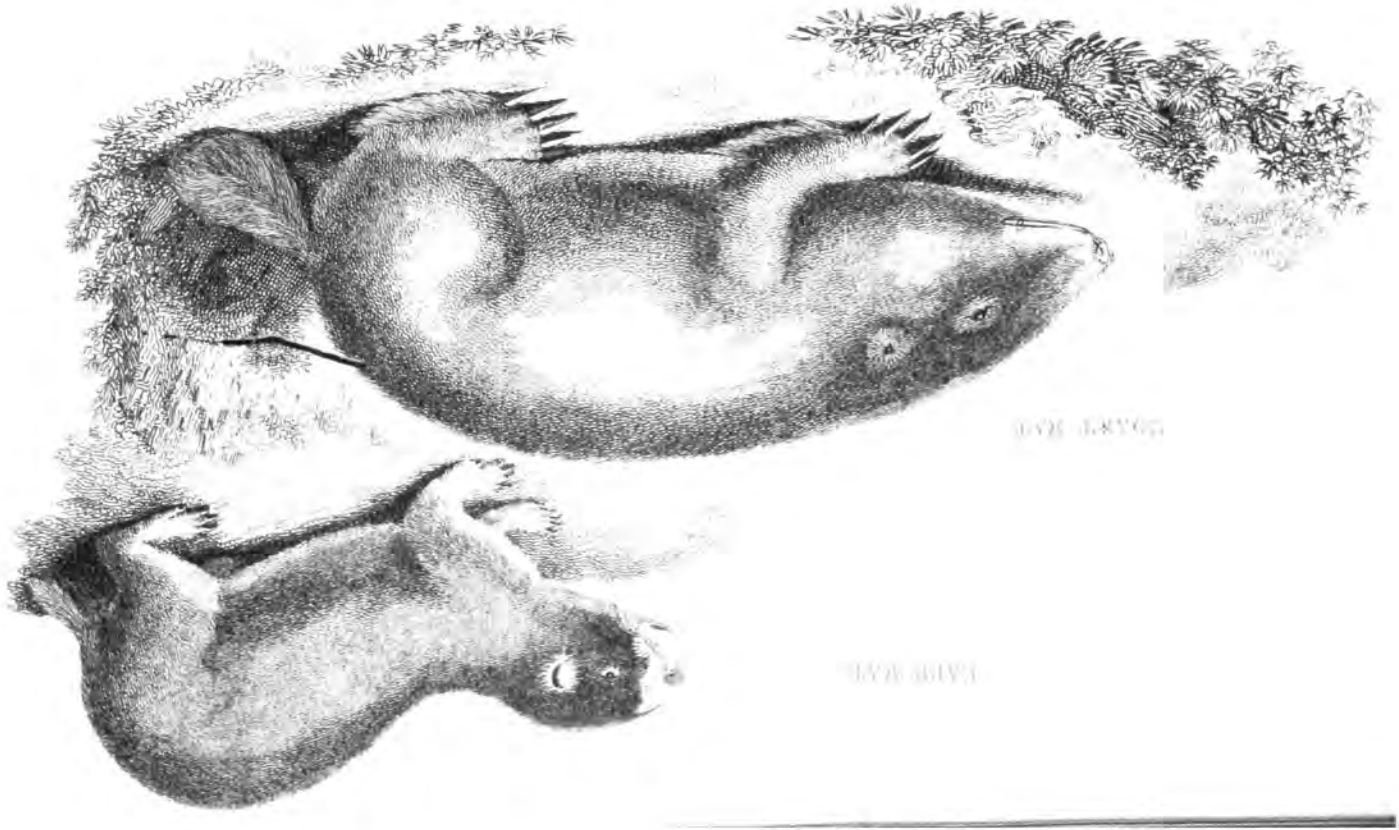
Mus Maritimus. *M. brachyurus, dentibus primoribus superioribus sulcatis, auriculis nullis, pedibus pentadactylis, corpore supra albido flavescente mixto, ad latera et subtus ex albo cinereo. Lin. Syst. Nat. Gmel. p.* 140.

Pale yellowish-brown Rat, whitish beneath, with very large and long naked teeth, pentadactyle feet, no external ears, and short tail.

La Grande Taupe du Cap. *Buff. suppl. 6. p.* 255. *pl.* 38.

African Rat. *Pennant Quadr. 2. p.* 217.

Of all the subterraneous species this is the largest yet discovered, being of the size of a rabbet, and measuring a foot from nose to tail, which is about two inches long, flattish, and covered with long bristly hair horizontally disposed on each side. The colour of the animal is a cinereous brown, paler beneath: the head is large, the nose black, the end somewhat flattened and wrinkled: the eyes very small and hid in the fur: there is no appearance of external ears, the foramina alone being discoverable: the front-teeth are very large; the upper pair are the third of an inch long, and are furrowed lengthways; the lower pair are an inch and quarter long, and naked, or naturally exposed to view, the lip not closing over them: these lower teeth it has the power of separating or divaricating at pleasure, in the manner of the Kanguroo: on the fore-feet



are five toes, of which the interior is the longest; the claws very long and sharp; that on the thumb being shorter than the rest: the hind-feet, which are very long, large, and naked, have also five toes, with much shorter and weaker claws than those of the fore-feet: the hair on the sides of the feet is very strong and bristly. This large species is a native of the Cape of Good Hope, and is there known by the name of the Sand Mole, being chiefly found in the neighbourhood of the shores, and never in the interior parts of the country. It renders the ground, in the places it frequents, so hollow, by flinging up the earth in forming its burrows, as to be highly inconvenient to travellers; breaking every six or seven minutes under the horses' feet, and letting them in up to the shoulders. It is supposed to feed principally on the bulbous *Ixiæ* and *Antholyzæ*. From the frequency of this species about the Cape, it is supposed to be an animal of a prolific nature.

BLIND RAT.

Mus Typhlus. *M. ecaudatus, palmis pentadactylis, incisoribus supra infraque latis, oculis auriculisque nullis. Lin. Syst. Nat. Gmel. p. 141. Pall. Glir. p. 76.*

Short-tailed rufous-brown Rat, dusky beneath, with pentadactyle fore-feet, broad front-teeth, and without eyes or external ears.

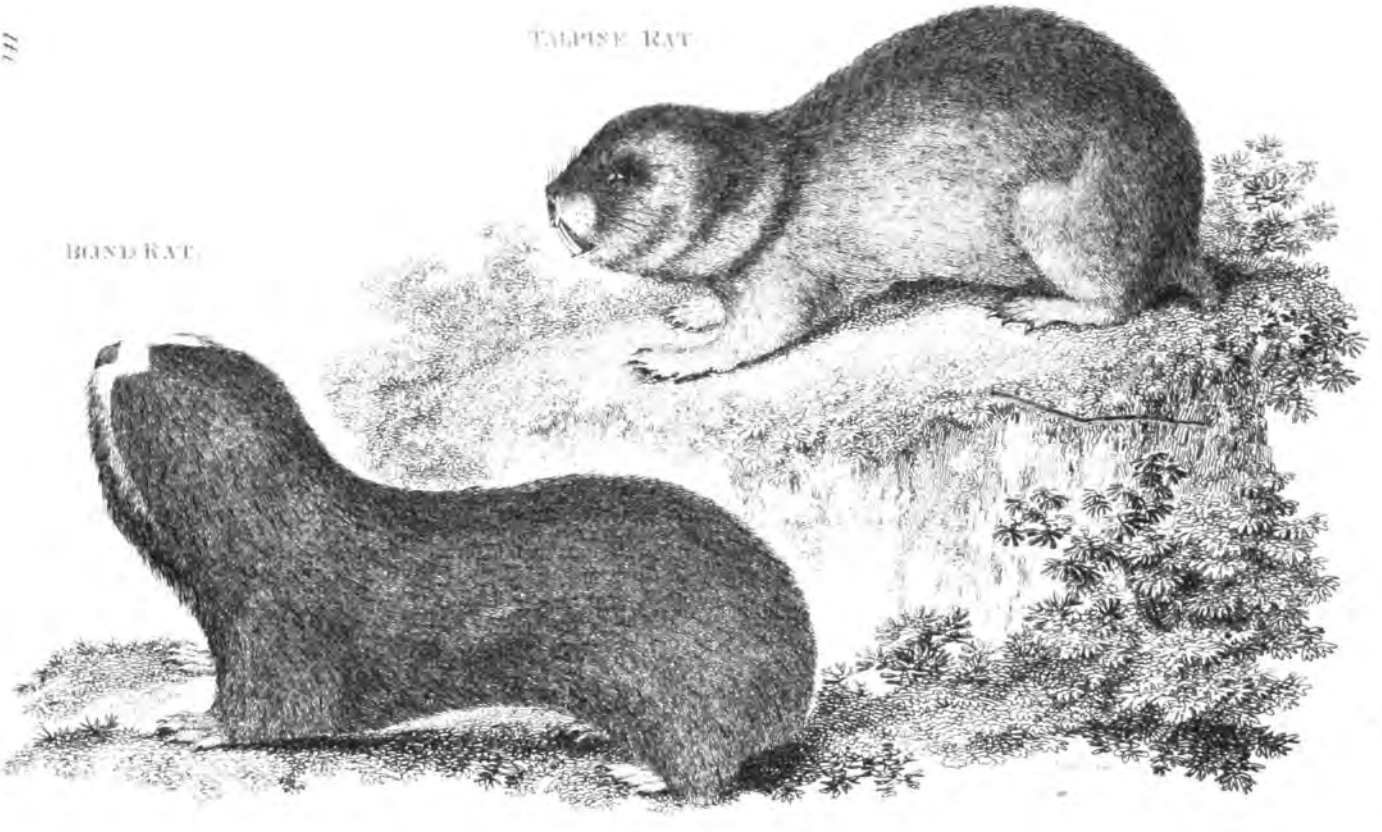
Spalax major. *Erxl. mamm. p. 337.*

Blind Rat. *Pennant Quadr. 2. p. 214.*

NEXT to the sand rat, above described, this is perhaps the largest and most remarkable of its tribe; measuring between seven and eight inches in length, and being entirely destitute both of eyes and tail: the defect of the former is a very singular circumstance, and the animal perhaps affords the only instance of a truly blind or eyeless quadruped. In the mole, the eyes, however small and deeply seated, are yet perfect in their kind, and though not calculated for acute vision, still enable the animal to avoid the danger of exposure; but in the quadruped now under consideration, there are merely a pair of subcutaneous rudiments of eyes, smaller than poppy-seeds, and covered with a real skin. It is probable, however, that even these minute organs are sufficient to give an obscure perception of light, and to enable the animal to consult its safety by generally continuing beneath the surface. The external ears are also wanting, and the foramina leading to the internal organs are very small, entirely hid by the fur, and situated at a great distance

TALPINE RAT

BOND RAT



backward. There is scarce any distinction between the head and neck, and the whole form of the animal, like that of the mole, is calculated for a subterraneous life; the body being cylindric, the limbs very short, and the feet and claws, though small and weak in comparison with those of moles, yet calculated for digging or burrowing in the ground. The colour of the animal is a greyish brown; the fur, which is very thick, soft, and downy, being dusky toward the roots, and greyish toward the tips: the head is lighter, and the abdomen darker than the other parts: the lower lip is also whitish, and sometimes a white mark extends along the forehead: the front-teeth are very large, and are naturally bare or exserted: the lower pair being much longer than the upper. This singular species is a native of the southern parts of Russia, where it burrows to a great extent beneath the surface, forming several lateral passages, by which it may pass in quest of roots, &c. It is said to feed in particular on the roots of the *Chærophyllum bulbosum.* In the morning hours it sometimes quits its hole to bask in the sunshine, and if disturbed, instantly takes refuge beneath the surface; burrowing with great agility, and frequently in a perpendicular direction. Its bite is very severe when attacked. It has no voice, but emits a kind of snorting sound, and gnashes its large teeth in a menacing manner, raising its head at the same time. The female is said to produce from two to four young.

DAURIAN RAT.

Mus Aspalax. *M. brachyurus, incisoribus supra infraque cuneatis, auriculis nullis, unguibus palmarum elongatis. Lin. Syst. Nat. Gmel. p.* 140. *Pall. Glir. p.* 165.

Short-tailed, earless, yellowish-cinereous Rat, with large cuneated front-teeth, and long claws on the fore-feet.

Daurian Rat. *Pennant Quadr.* 2. *p.* 216.

This species in form and manner of life agrees with the *Mus Typhlus* or Blind Rat, but is, in general, of smaller size, and of a yellowish ash-colour; and in some specimens a whitish line or longitudinal streak appears on the top of the head: the upper fore-teeth are naked, but the lower are covered with a moveable lip: there is no appearance of external ears, and the eyes are extremely small and deeply seated: the head is flat and blunt, the body short and somewhat depressed, the limbs very strong, especially the fore-legs, the feet of which are large, naked, and well adapted for burrowing in the ground, having five toes, the three middle of which are furnished with long and strong slightly-curved claws: the hind-feet are also naked, and have five toes with small claws: the tail is very short.

This animal burrows, like the rest of this division, raising numerous hillocks in its progress. It is a native of the Altaic mountains, and of the country beyond Lake Baikal. It differs considerably in size in different regions; those of the Altaic mountains sometimes measuring near nine inches in length.

CAPE RAT.

Mus Capensis. *M. brachyurus, dentibus primoribus supra infraque cuneatis, auriculis nullis, palmis pentadactylis, ore albo. Lin. Syst. Nat. Gmel. p.* 140. *Pall. Glir. p.* 172.

Short-tailed rufo-cinereous Rat, paler beneath, with very large naked front-teeth, pentadactyle feet, and white muzzle.

Taupé du Cap de bonne Esperance. *Buff. Suppl.* 3. *p.* 193. *pl.* 33. *and Suppl.* 6. *p.* 251. *pl.* 36.

Cape Rat. *Pennant Quadr.* 2. *p.* 218.

In its general shape this animal is not unlike the great sand rat first described, and is equally common about the Cape of Good Hope, but it is far inferior in size, measuring about seven inches to the tail, which is very short, nearly white, and flattish. The general colour of this species is a dusky rufous ash-brown, paler or more inclining to whitish beneath: the end or tip of the nose is naked and black; the remainder white, and on each side are several strong white bristles: the chin, lower sides of the cheeks, and spaces round the eyes, are also white, and on the hind part of the head is an oval white spot; the teeth are naturally exserted or naked, and are similar in form to those of the great sand rat. In its manners and way of life the animal is also similar to that species, and is very destructive to gardens, flinging up hillocks, and eating various kinds of roots. The best figure of this animal seems to be that in Mr. Brown's Illustrations of Zoology, for which reason it is introduced into the present work.

Dr. Pallas's representation is also added, though less expressive of the remarkable appearance of the teeth.

TALPINE RAT.

Mus Talpinus. *M. brachyurus fuscus, dentibus primoribus supra infraque cuneatis, auriculis nullis, palmis pentadactylis fossoriis. Lin. Syst. Nat. Gmel. p.* 139. *Pall. Glir. p.* 176.

Short-tailed brown Rat, with large cuneated front-teeth, no external ears, and pentadactyle fore-feet, formed for burrowing.

Spalax minor. *Erxleb. mamm. p.* 379.

Talpine Rat. *Pennant Quadr.* 2. *p.* 219.

This species is much allied to the Mus Capensis in shape and in its large teeth, but is of a smaller size, measuring scarcely four inches in length. Its colour is subferruginous brown above, paler or more inclining to whitish beneath: the tail is very short: the body plump; the head rather large, and the snout thick: the eyes small, and the foramina of the ears scarcely visible: the legs short; the feet naked, with five toes on each, furnished with moderately strong claws. This species is common in the temperate parts of Russia, and in some parts of Siberia, burrowing in black turfy ground, and especially in places where the *Phlomis tuberosa* and *Lathyrus esculentus* grow. In the winter it makes a nest beneath some shrub or hay-rick, at a considerable depth below the ground, lining it with soft grass,

but is not observed to become torpid. The female is said to produce three or four young. This animal sometimes varies in colour, and has been found totally black. It was first distinctly described by Dr. Pallas.